

Geotechnical Evaluation Report


ND Highway 1804 Major Rehabilitation
RP 248.920 to RP 267.000
North of New Town, North Dakota
SOIA-7-804(050)248, PCN 20326

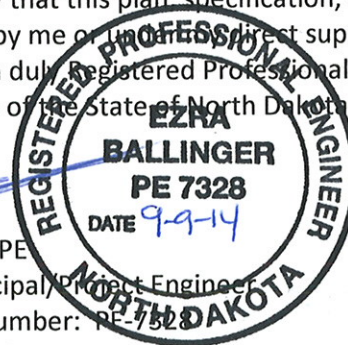
Prepared for

Ulteig Engineers, Inc.
1412 Basin Avenue
Bismarck, ND 58504

Professional Certification:

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of North Dakota.


Ezra Ballinger, PE
Associate Principal/Project Engineer
Registration Number: PE-7328
September 9, 2014



Project BM-13-05525

Braun Intertec Corporation

September 9, 2014

Project BM-13-05525

Mr. David Lutzky
Ulteig Engineers, Inc.
1412 Basin Avenue
Bismarck, ND 58504

Re: Geotechnical Evaluation Report
ND Highway 1804 Major Rehabilitation
RP 248.920 to RP 267.000
North of New Town, North Dakota
SOIA-7-804(050)248, PCN 20326

Dear Mr. Lutzky:

We are pleased to present this Geotechnical Evaluation Report for the proposed ND Highway 1804 major rehabilitation north of New Town, North Dakota. This project was completed in accordance with our proposal dated October 9, 2013.

In the Appendix of this report we present the Linear Soils Report which summarizes the results of laboratory testing in borings along the existing roadway. The Appendix also contains the Boring Logs, Grain Size Accumulation Curves and Proctors. This information is being provided to Ulteig Engineers, Inc. (Ulteig) and the North Dakota Department of Transportation's (NDDOT) Construction Division, Materials and Research Division and the Williston District to assist in the roadway design and determination of quantities.


Thank you for making Braun Intertec your geotechnical consultant for this project. If you have questions about this report, or if there are other services that we can provide in support of our work to date, please contact Ezra Ballinger by phone at 701.232.8701 or by email at eballinger@braunintertec.com.

Sincerely,

BRAUN INTERTEC CORPORATION



Ezra Ballinger, PE
Associate Principal/Project Engineer



Steven P. Nagle, PE
Vice President/Principal Engineer

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Appendix B: Log of Boring Sheets

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A. Introduction

A.1. Project Description

The North Dakota Department of Transportation (NDDOT) is planning a major rehabilitation of approximately 18.1 miles of ND Highway 1804 north of New Town, North Dakota. The project area will extend from Reference Point (RP) 248.615 north to RP 267.000 just south of the junction with 55th Street NW. The project involves construction of passing lanes, turning lanes, and widening the existing shoulders. A new pavement section will be designed to establish a non-restrictive load carrying capacity in order to accommodate the high volume of oil-related traffic. The new pavement sections will be 4.5 inches of Superpave from RP 248.615 to RP 260.382 and 5 inches of Superpave from RP 260.382 to 267.000 as determined by the NDDOT.

We are providing the results of the linear soils survey within this report. The bridge designs have not been completed by others and a report presenting the results of those borings will be presented under separate cover or as an update to this report at a later date.

A.2. Purpose

The purpose of this geotechnical evaluation is to assist Ulteig and the NDDOT with the design of the project.

A.3. Scope of Services

We submitted a proposal to Ms. Jennifer Hanley of Ulteig on October 9, 2013. Our scope of services in the proposal consisted of the following tasks and subtasks:

- Engineering and Project Management
 - Develop project scope,
 - Site reconnaissance (including maintenance review),
 - Prepare drilling instructions/call in utility locates,
 - Drilling oversight;
 - Traffic control,
 - Oversee laboratory testing,
 - Prepare boring logs,
 - Roadway design with regard to the encountered soils,

- Attend design meetings/conference calls,
 - Prepare a draft geotechnical report,
 - Prepare final geotechnical report, and
 - Overall project management of drilling, laboratory testing, and engineering.
- Drilling
 - Drill two (2) standard penetration test borings to an average depth of 100 feet to develop the foundation recommendations for the new bridge over the Little Knife River,
 - Drill 107 flight auger borings to an average depth of 10 feet at approximately 1,000 feet spacings along the roadway (including 10 to account for heavy maintenance areas),
 - Drill 24 flight auger borings to an average depth of 25 feet for borrow areas, and
 - Stake boring locations and coordinate with utility companies to locate buried utilities.
 - Laboratory Testing
 - Conduct an average of 12 moisture contents, three unconfined compressive strength tests, 1 modified Proctor, 1 Atterberg limit, and 1 grain size analysis test for each of the structure borings,
 - Conduct an average of 9 moisture contents, one modified Proctor, one Atterberg limit, and one grain size analysis test for each of the roadway borings, and
 - Perform an average of 25 moisture contents, 1 ½ modified Proctors, 1 ½ Atterberg limits and 1 ½ grain size analyses per borrow area boring.

Our scope of work was modified as the project progressed:

- Drilling
 - 112 borings were performed for the linear soil survey, as borings were spaced about 500 feet apart in the 2 ½ mile stretch south of the Little Knife River due to ongoing maintenance in the area.
- Pavement Coring
 - In November 2013 we were asked to add coring to our scope of work. We performed coring at 147 locations to supplement the asphalt thickness measurements obtained from the flight auger borings.
- Borrow Areas

As of the time of this report the borrow sites have not been identified or drilled. The results of that evaluation will be presented under separate cover at a later date.

B. Results

B.1. Coring

Coring was performed along the route on February 11th to 13th, 2014. The cores were spaced at 1/8 mile apart on alternating sides of the roadway and were cut using a truck mounted core drill. A spreadsheet containing the number, location, and asphalt thickness at each of our coring locations is included in Appendix A of this report. The cores were numbered sequentially 1 through 74 (proceeding north) in the northbound lane and then 75 through 147 (proceeding south) in the southbound lane.

B.2. Borings

Log of Boring sheets for our test borings are included in Appendix B. The logs identify and describe the geologic materials that were penetrated, and present the results of penetration resistance tests (if any) performed within them, laboratory tests performed on samples retrieved from them, and groundwater measurements. The borings were performed using a truck-mounted drill rig equipped with power flight auger. The linear soils survey borings are labeled LSS-01 through LSS-98 (sequentially proceeding northward). Borings LSS-3A through LSS-16A were added between the adjacent borings to provide additional data within the ongoing maintenance area south of the bridge over the Little Knife River.

Strata boundaries were inferred from changes in the auger cuttings. The boundary depths likely vary away from the boring locations, and the boundaries themselves may also occur as gradual rather than abrupt transitions.

The coordinates of the boring locations were provided by Ulteig.

B.3. Geology

A review of geologic information in the vicinity of the site indicates that the soils are alluvial deposits, glacial till, or weathered bedrock. Specifically, the “Interpretive Geologic Map of Mountrail County, North Dakota” (Clayton, 1972) and the “Descriptive Geologic Map of Mountrail County, North Dakota”

(Clayton, 1972) indicate the soils consist primarily of erosional sediments and exposed Sentinel Butte Formation weathered bedrock south of the Little Knife River channel. Within the river channel the mapped soils are alluvial deposits described as “very dark brown sandy clayey silt, river sediment deposited in the valley bottoms in areas of integrated drainage during the last 9000 years”. North of the river to the end of the project the roadway crosses glacially deposited soils described as “a mixture of about equal parts of clay, silt and sand plus a few percent pebbles and some cobbles and boulders as much as a few feet in diameter”.

For the project, the predominant soil types encountered were A-6 and A-7-6 soils.

B.4. Site Reconnaissance

We visited the site on two occasions in November 2013 and drove it to note the site terrain and evaluate potential drilling issues on the project. The topography along the alignment was typically gently undulating, with the few miles south of the Little Knife River near the beginning of the project where the terrain is rolling with steeper vertical curves. Once the roadway turns to the north about halfway through the project there were no horizontal curves. The roadway corridor for the southern half of the project was generally bordered by pasture land on the east and Lake Sakakawea on the west. The north half of the project was bordered by pasture land on both sides. There were several oil wells along Highway 1804 or off of county roads to either side of the state road.

There were relatively few apparent cuts or fills along the alignment with the vertical alignment generally following the natural grades. The ditches, in-slopes and back-slopes were vegetated with native grasses and shrubs. The surface of the pavement appeared to be in good condition with relatively few large cracks, rutting, or sloughing. Figures 1 to 3 on the following pages show the typical site conditions.

Figure 1. View looking north at typical terrain in southern half of project.



Figure 2. View looking northwest at the Little Knife River valley.



Figure 3. View looking north at typical terrain in northern half of the project.

September 9, 2014



B.5. Maintenance Review

As part of our scope of work we were asked to identify and drill any locations noted by the NDDOT as continual maintenance areas. During the field review meeting at the New Town Section office, coinciding with our site reconnaissance, we discussed the project area with Pat Staples, the New Town Section Chief for the NDDOT. Pat indicated that the area between approximate mile posts 249 and 251 was notorious for sloughing and depressions that were problematic for maintaining the roadway.

Prior to drilling the borings, we visited the site again and looked at the roadway along the area more closely. Figures 4 to 6 on the following pages show typical distress noted through the area.

Figure 4. View of typical transverse cracking at several locations between RP's 249 and 251



Figure 5. View of typical depressions within the roadway between RP's 249 and 251

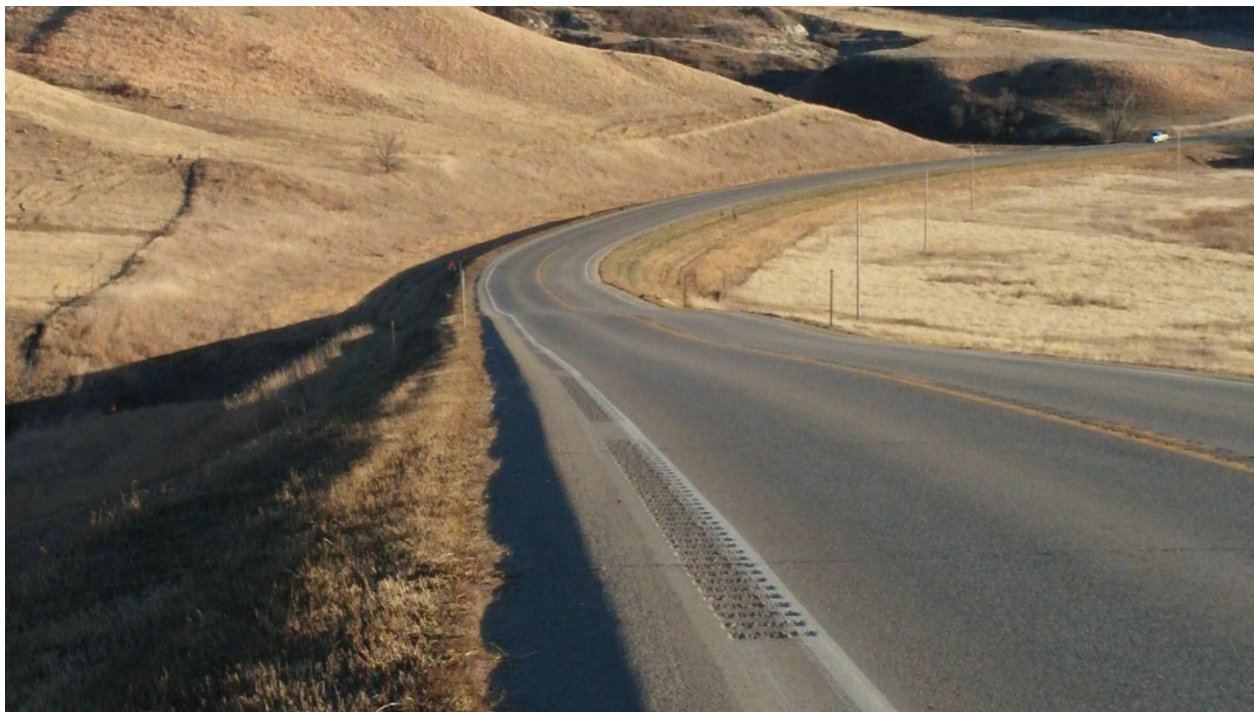


Figure 6. View of alligator cracking at approximate RP 251.1



Due to the commonplace depressions throughout the area, after conversations with Ulteig and the NDDOT it was decided that the boring frequency within these two miles would be reduced to 500 feet to provide a more thorough understanding of soils conditions throughout the area. Borings 3A through 16A were subsequently added to our scope. Boring 13A was performed at the location of the alligator crack seen in Figure 6.

B.6. Summary of Findings

B.6.a. Soil Classification and Comments

For the linear soils survey we collected a total of 119 bulk samples and 1008 moisture content samples from the flight auger. The borings were extended to a depth of 10 feet as indicated on the boring logs.

The results of our laboratory testing are shown in Tables 1 and 2 below, on the Log of Boring sheets in Appendix B, on the Linear Soils Report in Appendix C, on the Grain Size Accumulation Curves (Appendix E), and/or on the Proctor test results in Appendix F attached to this report.

Table 1. Summary of Classification, Moisture Content, and Maximum Dry Unit Weight Testing for Roadway Borings

AASHTO Classifications	Quantity	In Place Moisture Range (%)		In Place Moisture Average (%)	AASHTO T-180 Optimum Moisture Average (%)	AASHTO T-180 Maximum Dry Unit Weight Average (pcf)
		Min	Max			
A-1-b	1	2	6	3.2	8.0	134.4
A-2-4	1	3	11	5.2	7.0	141.0
A-2-6	1	5	10	7.8	6.0	140.0
A-6	66	4	36	18.2	11.1	122.8
A-7-6	50	11	38	20.9	12.4	121.0

Table 2. Summary of Atterberg Limits Testing

AASHTO Classifications	Quantity	Liquid Limit Range (%)		Liquid Limit Average (%)	Plastic Limit Range (%)		Plastic Limit Average (%)	Plastic Index Range		Plastic Index Average
		Min	Max		Min	Max		Min	Max	
A-1-b ¹	1	NP	NP	NP	NP	NP	NP	NP	NP	NP
A-2-4	1	25	25	25	16	16	16	9	9	9
A-2-6	1	28	28	28	12	12	12	16	16	16
A-6	66	26	40	37	13	21	16	11	25	21
A-7-6	50	41	88	45	14	21	17	23	67	29

1. The sample tested was Non-Plastic.

As can be seen in Table 1, the majority of the soils encountered in the borings were generally 7 to 9 percent wet of their optimum moisture contents on the average as determined by AASHTO T-180. The moisture content of the soils will most likely vary over the year as the seasons change and may be different at the time of construction than was encountered in our borings.

The soils encountered in the borings are considered moderately to highly frost-susceptible. Soils classified as A-6 and A-7-6 soils are generally considered fair to poor subgrade materials. The Atterberg limits testing results provided in Table 2 are used to determine the group index of the soils. A group index of 20 or greater indicates very poor subgrade materials. All of the A-6 soils tested had a group index of 18 or lower (average of 10.7). Of the 50 soils that were classified as A-7-6 materials, the average group index was 19.8, with 17 samples having a group index greater than 20 (14 were less than 30, with LSS-03, LSS-04A, and LSS-08 having values of 34, 72, and 47, respectively).

B.6.b. Groundwater

Groundwater was observed in only two of the borings (LSS-09 and LSS-09A) at a depth of 9 feet. The observation periods were relatively short for all of the borings and water can be anticipated in other locations at the time of construction. In addition, seasonal and annual fluctuations in groundwater levels should be anticipated. Elevated water levels should be anticipated following spring thaw and periods of heavy precipitation.

C. Analysis and Recommendations

C.1. Proposed Construction

We understand this project involves a major rehabilitation of the existing roadway with a hot bituminous pavement overlay. It is our understanding based on conversations with Mr. Dave Lutzky of Ulteig, that approximately 6 foot wide gravel shoulders will be added to the roadway in addition to the overlay. The project will also involve the construction of some turning lanes and passing lanes. It is our understanding that the exact locations of turning lanes and passing lanes have not been determined yet.

The cross sections for the roadway have not been developed at this time, however, we have been provided with the preliminary plan and profile of the route with plan sheets 1 through 48 of Section No. 90, which are dated April 9, 2014. Our review of the plans indicate that the horizontal alignment of the roadway will not be altered more than necessary to accommodate the new pavement section. The vertical alignment will be lowered to create better sight distance at the following locations:

- Station 13160+00 to 13175+00 (up to 11 feet),
- Station 13223+00 to 13239+00 (up to 10 feet),
- Station 13262+00 to 13275+00 (up to 8 feet),
- Station 13313+00 to 13327+00 (up to 3 feet),
- Station 13439+00 to 13447+00 (up to 3 feet),
- Station 13457+00 to 13464+00 (up to 3 feet),
- Station 13609+00 to 13622+00 (up to 6 feet),
- Station 13875+00 to 13890+00 (up to 3 feet), and
- Station 13990+00 to 14007+00 (up to 3 feet).

The pavement section for the new roadway will be developed by the NDDOT. We understand that all work on the site will be performed in accordance with NDDOT Standard Specifications.

C.2. Treatment of Organic Soils

Organic soils are present in the existing ditches along the alignment where turning or passing lanes and shoulders will be widened. We recommend that all vegetation, root zones and organic topsoils be removed prior to subgrade preparation and placement of new fill for embankments in these areas. After the removal of organics, the subgrade should be prepared as indicated in Section C.3. Organic soils that are removed should not be reused as embankment fill; however they could be stockpiled and may be used as dressing on the new embankment slopes.

C.3. Subgrade Preparation

Based on conversations with Ulteig and a review of the typical sections, it is our understanding that along the majority of the project the existing in-slopes of the roadway will receive minimal fill (about 2 vertical feet) to support the widened lane and shoulders.

We recommend 12 inches of subgrade preparation beneath the roadway in cut and fill areas where the roadway is widened. Subgrade preparation in these areas should comply with NDDOT Specification 230.02 B.2 (Type A). Compaction control for subgrade preparation should be in accordance with AASHTO T-180 and NDDOT Specification 203.02G (Type A).

If unstable soils are present below the topsoil, scarification and drying or overexcavation and replacement of the unsuitable soils could be considered.

C.4. Subgrade Remediation

Based on the conditions encountered in our borings, we do not anticipate that any remediation will be necessary in the ditches along the majority of the project to support the widening. Localized subgrade soils with exceedingly high liquid limits (62 and 88 percent, respectively) and AASHTO group indices (47 and 72, respectively) were encountered at Borings LSS-04A and LSS-08, respectively. Based on our experience, soils with these liquid limits are very susceptible to strength loss due to high moisture contents during or after construction and may require subgrade remediation depending on the conditions at the time of construction.

We recommend that the contractor anticipate 3500 lineal feet of discretionary subgrade remediation to 1 ½ vertical feet below the top of subgrade elevation. We anticipate that this will be used at the

discretion of the NDDOT Project Engineer during construction where localized soft spots are encountered during subgrade preparation.

Subgrade remediation should be performed with a backhoe using a smooth cutting edge to minimize disturbance of the underlying soils. A 20H:1V transition shall be constructed prior to entering and exiting subcut excavations. No construction equipment traffic should be allowed to operate on the exposed subgrades. We anticipate that the majority of the subgrade remediation can be performed by removing the existing soft soil and replacing it with embankment fills. Where very soft subgrades are encountered and this approach will not work, then subcutting (removal and backfill with imported aggregate) should be performed in accordance with NDDOT Specification 203.02C.

C.5. Subgrade Drainage

Due to predominantly clay soils, we recommend that drainage be provided for aggregate base placed over the on-site soils. Drainage should be provided by sloping the subgrade and daylighting the aggregate base to the shoulders. Loosely placed topsoil over the aggregate slough generally will not impede the flow of water out of the aggregate base layer provided the subgrade is sloped to drain to the ditches. Water should not be allowed to infiltrate the clay subgrade but instead flow down the in-slopes and be collected and routed through the ditches and culverts on either side of the road.

C.6. Unsuitable Materials

Based on the soils encountered in our borings, we anticipate that the soils encountered in excavations for the project will be suitable for construction of the roadway embankment. As discussed in Section C.2, organic soil deposits should not be used as embankment fill. We recommend that imported soils used as borrow be similar to the existing subgrade soils in the area. Any soils encountered or imported that cannot be moisture conditioned and compacted according to the recommendations of this report should not be used.

C.7. Maintenance Area

As discussed in Section B.5 we drilled borings at 500 foot intervals in the area approximately between RP's 249 and 251. The subgrade soils encountered in all of the borings in the south mile of the area were classified as A-7-6 soils with group indices ranging from 15 to 72 (average of 30), which includes the three most unsuitable soils of the project (Borings LSS-03A, LSS-04, and LSS-08). In the northern mile of the maintenance area, the soils were more variable, switching from A-6 to A-7-6 on several occasions as the roadway proceeds north.

Based on our site observations in the area, the roadway appears to transition back and forth within the two miles from cut to fill several times. In our experience the subgrade in these transition zones can be more susceptible to accumulations of moisture resulting in weaker subgrades and/or more roadway damage due to freeze/thaw cycles. These weaker subgrades often result in unpredictable settlement and/or heave resulting in an undulating roadway surface and in transverse cracking across the roadway near topographic changes.

The soil types encountered in our borings throughout this area are generally not isolated to these two miles (except for the soils encountered in LSS-03A, LSS-04, and LSS-08) and therefore they have been and can be used and placed correctly if appropriate care is taken by the contractor. It is our opinion that additional subcutting is not necessary as a matter of course in this area, though subcutting may be prescribed by the NDDOT Project Engineer during observations. Additional care should be taken by the contractor in working with the soils in this area to be sure they remain workable when they are exposed and/or placed in order to perform as desired over the life of the project and reduce the potential for ongoing maintenance issues in the area.

One of the biggest factors in mitigating the potential for distress is the provision of positive drainage such that water cannot collect on the subgrade. Extra care should be taken by the contractor with consideration to the recommendations provided in Section C.5 above regarding subgrade drainage.

C.8. Settlement

It is our understanding that cross sections for the route have not been finalized at this time. However, based on our review of the plan and profile for the route and on conversations with Ulteig, we anticipate that the new fills on the project will typically be less than about 1 to 2 feet (in the lane/shoulder widening areas). Based on these conditions and assuming that the construction is in accordance with the recommendations of this report, we anticipate the settlement due to new soil load will occur during construction.

C.9. Backslopes

Based on our experience with similar projects, we have assumed that where necessary the design cross sections will include cutting the existing soil back to a 4H:1V (Horizontal:Vertical) slope outside of the ditches (if required). We understand that the NDDOT would prefer to use 4:1 backslopes wherever possible. If cases exist where it is not possible to use a 4:1, a 3:1 back-slope may be adequate from a

stability standpoint, however, site specific evaluations should also be performed at those locations under consideration for steepening beyond a 4:1.

We recommend that for any backslopes greater than 20 feet tall (if any), benches about 10 feet wide be constructed no more than 20 vertical feet apart to reduce the potential for erosion due to water flowing down the slope face. We also recommend that the back-slopes be planted with native grasses/shrubs, where possible, as a further protection against erosion. We anticipate that excavation can be performed with typical excavation equipment.

D. Construction

D.1. Excavation

Bedrock that impeded our drilling equipment was not encountered in our borings; therefore it is our opinion that the soils in the borings can be excavated with standard equipment such as scrapers, earth movers and backhoes. Depending on the time of construction, the subgrades may be excessively wet. It may be necessary to limit the activities of rubber-tired equipment directly on the embankment until the soils are dried.

D.2. Testing

We recommend density testing of backfill and fill placed for the roadway. As indicated above, we recommend the use of AASHTO T180 as per NDDOT supplemental specifications. The testing frequency should follow NDDOT requirements.

E. Procedures

E.1. Coring

The pavement cores were cut using a truck-mounted core machine with a 4" diameter barrel. The cores were performed in accordance with ASTM D5361. Cores were cut through the pavement and terminated once the aggregate base was encountered. The actual pavement thicknesses measured from the cores are shown on the spreadsheet attached in the Appendix.

E.2. Borings

The borings were drilled with a truck-mounted core and auger drill equipped with power auger. The borings were performed by advancing the auger at 1 or 2 foot intervals and “dead-pulling” the auger to collect moisture content samples off of the auger at 1-foot spacings. A bulk sample of the soil encountered between the bottom of the aggregate base and the bottom of the hole (or soil type) was collected from the auger after moisture content samples were collected. Sample intervals and corresponding depths are shown on the boring logs.

E.3. Material Classification and Testing

E.3.a. Visual and Manual Classification

The geologic materials encountered were visually and manually classified in accordance with ASTM Standard Practice D 2488. A chart explaining the classification system is attached. Samples were placed in jars or bags and returned to our facility for review and storage.

E.3.b. Laboratory Testing

The results of the laboratory tests performed on geologic material samples are noted on or follow the appropriate attached exploration logs. The tests were performed in accordance with AASHTO procedures.

E.4. Groundwater Measurements

The drillers checked for groundwater as the borings were advanced, and again after auger withdrawal. The boreholes were then backfilled.

F. Qualifications

F.1. Variations in Subsurface Conditions

F.1.a. Material Strata

Our evaluation, analyses and recommendations were developed from a limited amount of site and subsurface information. It is not standard engineering practice to retrieve material samples from exploration locations continuously with depth, and therefore strata boundaries and thicknesses must be inferred to some extent. Strata boundaries may also be gradual transitions, and can be expected to vary in depth, elevation and thickness away from the exploration locations.

Variations in subsurface conditions present between exploration locations may not be revealed until additional exploration work is completed, or construction commences. If any such variations are revealed, our recommendations should be re-evaluated. Such variations could increase construction costs, and a contingency should be provided to accommodate them.

F.1.b. Groundwater Levels

Groundwater measurements were made under the conditions reported herein, shown on the exploration logs, and discussed in Section B.6.b of this report. It should be noted that the observation periods were relatively short, and groundwater can be expected to fluctuate in response to rainfall, flooding, irrigation, seasonal freezing and thawing, surface drainage modifications and other seasonal and annual factors.

F.2. Continuity of Professional Responsibility

F.2.a. Plan Review

This report is based on a limited amount of information, and a number of assumptions were necessary to help us develop our recommendations. It is recommended that our firm review the geotechnical aspects of the designs and specifications, and evaluate whether the design is as expected, if any design changes have affected the validity of our recommendations, and if our recommendations have been correctly interpreted and implemented in the designs and specifications.

F.2.b. Construction Observations and Testing

It is recommended that we be retained to perform observations and tests during construction. This will allow correlation of the subsurface conditions encountered during construction with those encountered by the borings, and provide continuity of professional responsibility.

F.3. Use of Report

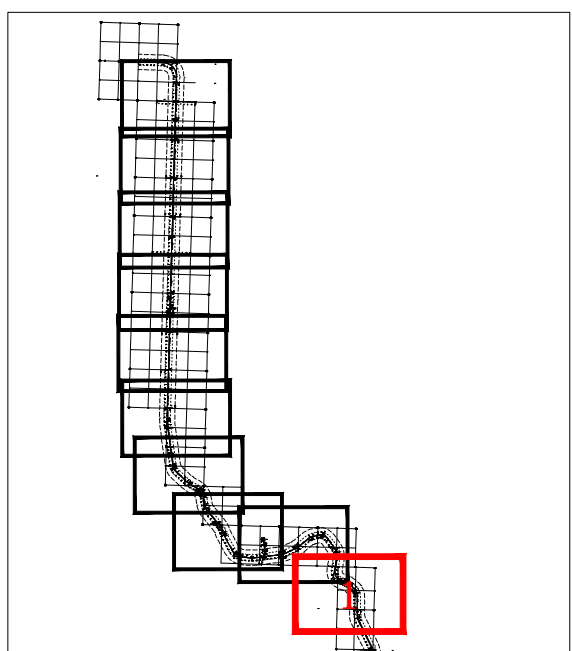
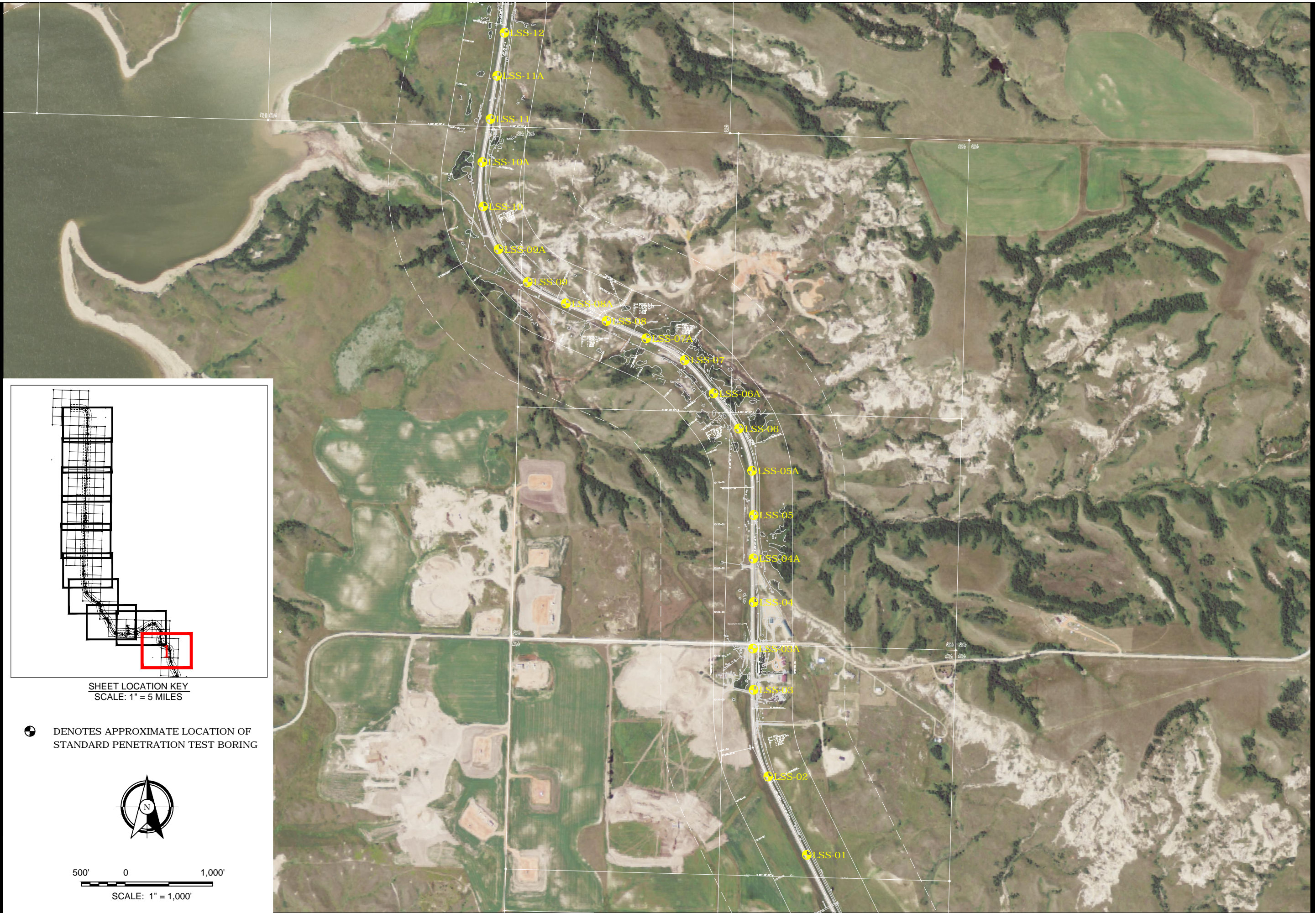
This report is for the exclusive use of the parties to which it has been addressed. Without written approval, we assume no responsibility to other parties regarding this report. Our evaluation, analyses and recommendations may not be appropriate for other parties or projects.

F.4. Standard of Care

In performing its services, Braun Intertec Corporation used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

Appendix A:
Boring Locations and Core Results

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SHEET LOCATION KEY
SCALE: 1" = 5 MILES



DENOTES APPROXIMATE LOCATION OF
STANDARD PENETRATION TEST BORING



SCALE: 1" = 1,000'

BRAUN INTERTEC

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Minneapolis, MN 55438
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Base Dwg Provided By:
ULTEIG ENGINEERING

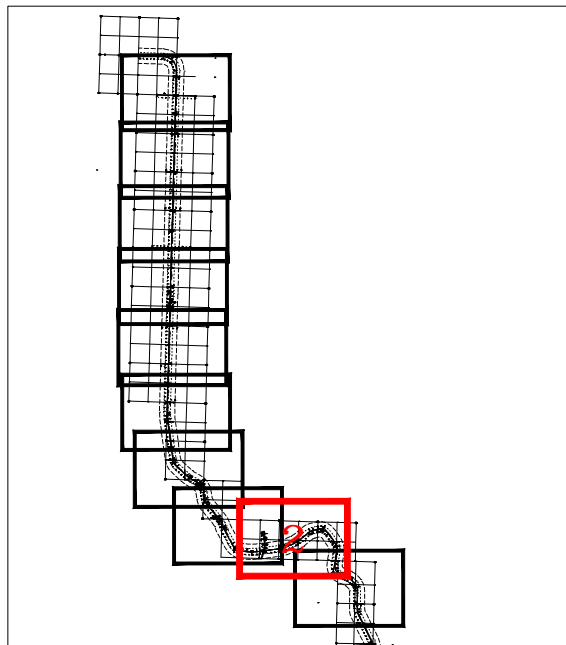
SOIL BORING LOCATION SKETCH
GEOTECHNICAL EVALUATION
HIGHWAY 1804 RECONSTRUCTION
REFERENCE POINT 248.620 TO 267.000
NORTH OF NEW TOWN, NORTH DAKOTA

Project No: BM1305525	
Drawing No: BM1305525	
Scale:	1" = 1,000'
Drawn By:	BJB
Date Drawn:	6/17/14
Checked By:	EB
Last Modified:	6/17/14
Sheet:	Fig:
1 of 10	

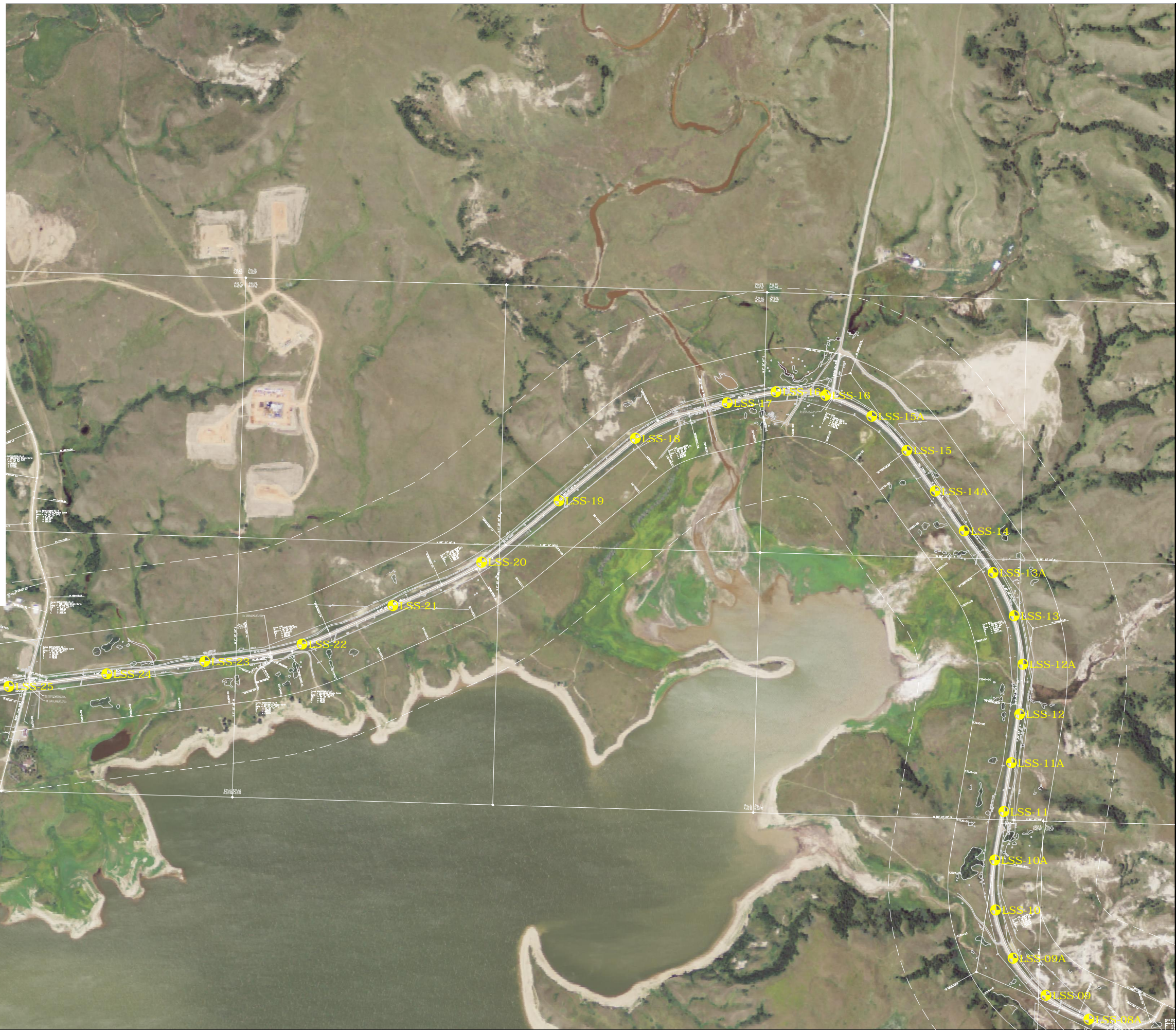


500' 0 1,000'
SCALE: 1" = 1,000'

⊙ DENOTES APPROXIMATE LOCATION OF
STANDARD PENETRATION TEST BORING



SHEET LOCATION KEY
SCALE: 1" = 5 MILES



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PH. (952) 995-2000
FAX (952) 995-2020

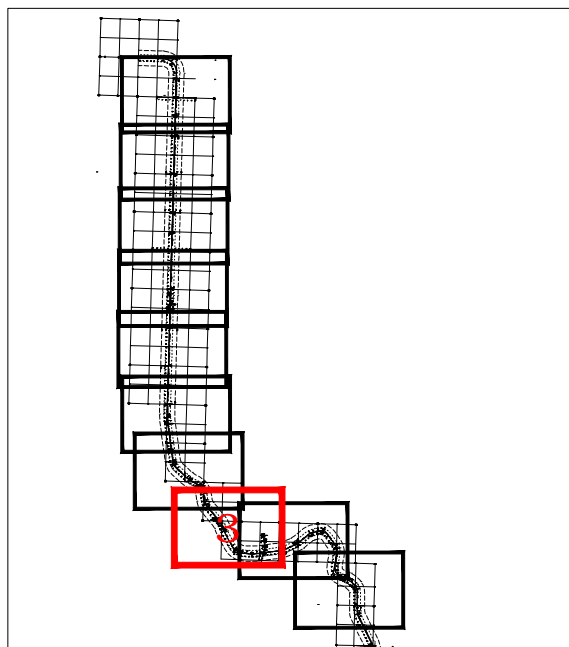
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ULTEIG ENGINEERING

SOIL BORING LOCATION SKETCH
GEOTECHNICAL EVALUATION
HIGHWAY 1804 RECONSTRUCTION
REFERENCE POINT 248.620 TO 267.000
NORTH OF NEW TOWN, NORTH DAKOTA

Project No:	BM1305525
Drawing No:	BM1305525
Scale:	1" = 1,000'
Drawn By:	BJB
Date Drawn:	6/17/14
Checked By:	EB
Last Modified:	6/17/14

Sheet:	Fig:
2 of 10	

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SHEET LOCATION KEY
SCALE: 1" = 5 MILES

⊙ DENOTES APPROXIMATE LOCATION OF
STANDARD PENETRATION TEST BORING



500' 0 1,000'
SCALE: 1" = 1,000'

BRAUN INTERTEC

11001 Hampshire Avenue So.
Minneapolis, MN 55438
PH. (952) 995-2000
FAX (952) 995-2020

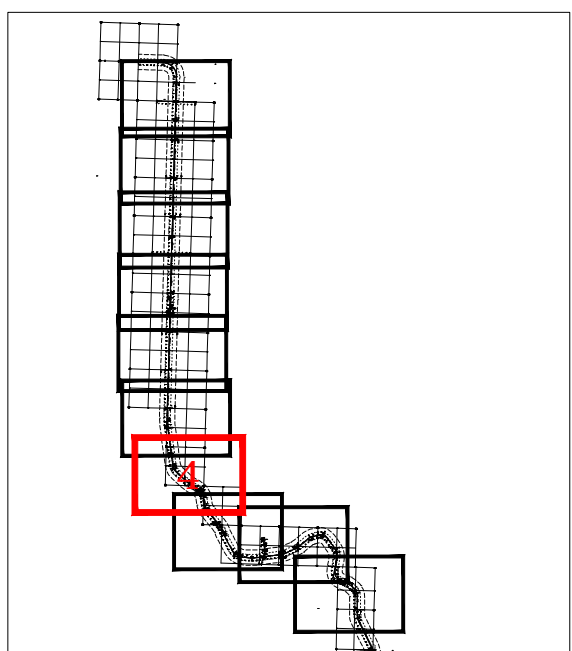
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SOIL BORING LOCATION SKETCH
GEOTECHNICAL EVALUATION
HIGHWAY 1804 RECONSTRUCTION
REFERENCE POINT 248.620 TO 267.000
NORTH OF NEW TOWN, NORTH DAKOTA

Project No:	BM1305525
Drawing No:	BM1305525
Scale:	1" = 1,000'
Drawn By:	BJB
Date Drawn:	6/17/14
Checked By:	EB
Last Modified:	6/17/14

Sheet: 3 of 10 Fig:

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SHEET LOCATION KEY
SCALE: 1" = 5 MILES

⊙ DENOTES APPROXIMATE LOCATION OF
STANDARD PENETRATION TEST BORING



SCALE: 1" = 1,000'

BRAUN INTERTEC

11001 Hampshire Avenue So.
Minneapolis, MN 55438
PH. (952) 995-2000
FAX (952) 995-2020

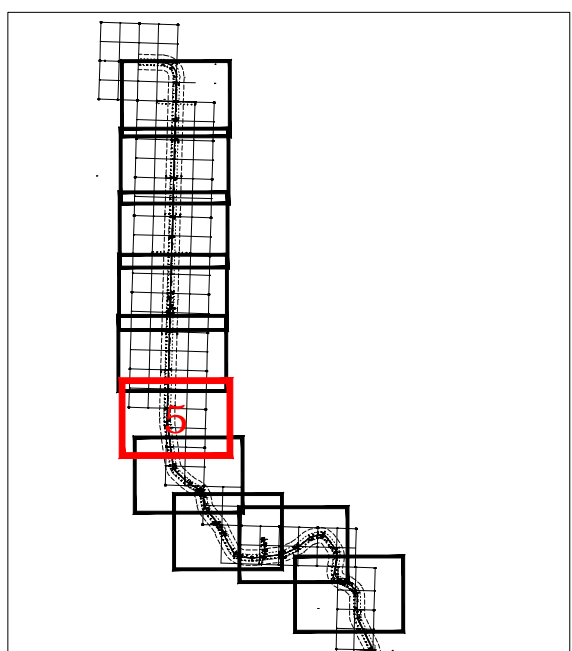
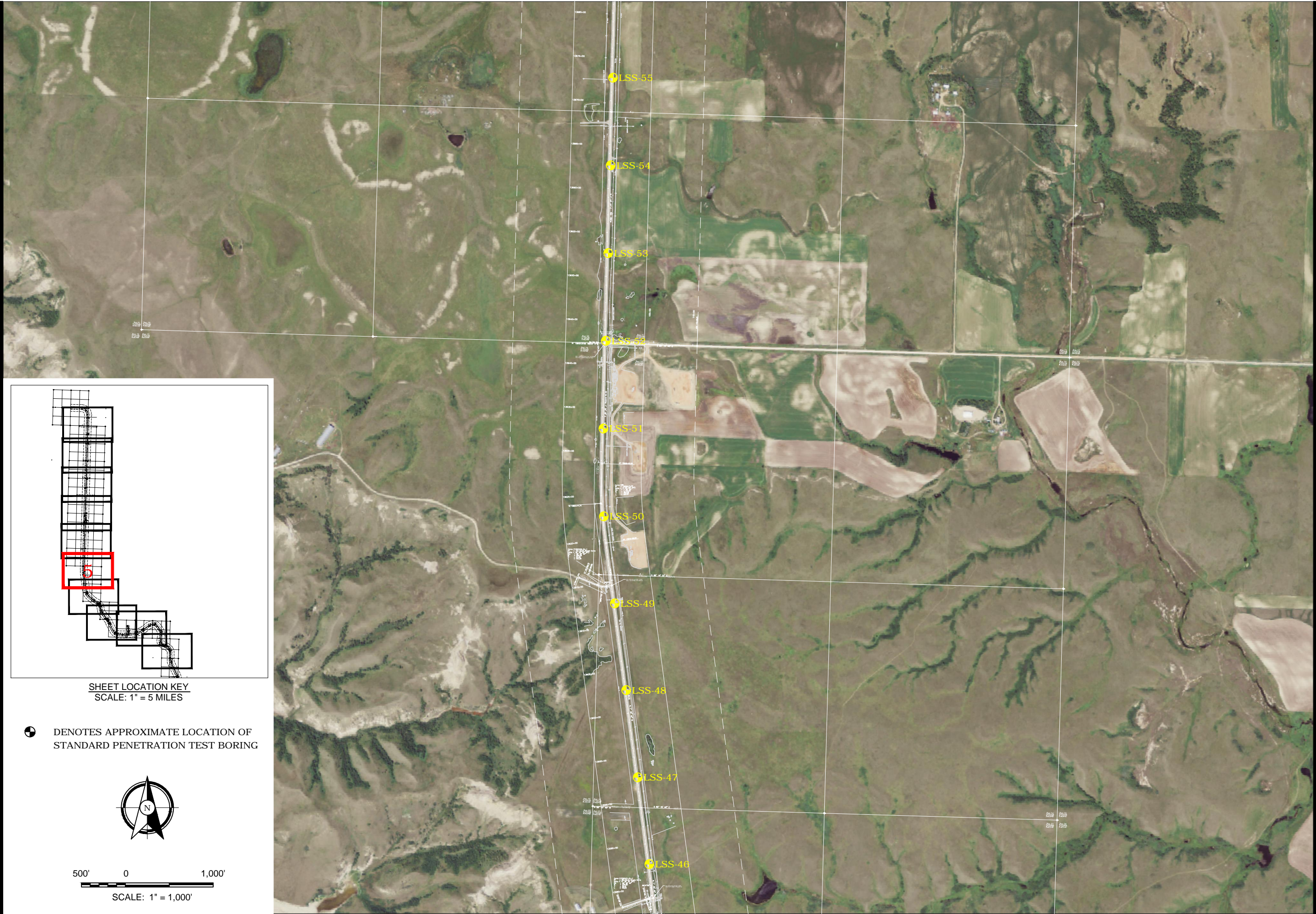
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SOIL BORING LOCATION SKETCH
GEOTECHNICAL EVALUATION
HIGHWAY 1804 RECONSTRUCTION
REFERENCE POINT 248.620 TO 267.000
NORTH OF NEW TOWN, NORTH DAKOTA

Project No:	
BM1305525	
Drawing No:	
BM1305525	
Scale:	1" = 1,000'
Drawn By:	BJB
Date Drawn:	6/17/14
Checked By:	EB
Last Modified:	6/17/14

Sheet:	Fig:
4 of 10	

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SHEET LOCATION KEY
SCALE: 1" = 5 MILES

⊙ DENOTES APPROXIMATE LOCATION OF
STANDARD PENETRATION TEST BORING



500' 0 1,000'
SCALE: 1" = 1,000'

BRAUN INTERTEC

11001 Hampshire Avenue So.
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FAX (952) 995-2020

Base Dwg Provided By:
ULTEIG ENGINEERING

SOIL BORING LOCATION SKETCH
GEOTECHNICAL EVALUATION
HIGHWAY 1804 RECONSTRUCTION
REFERENCE POINT 248.620 TO 267.000
NORTH OF NEW TOWN, NORTH DAKOTA

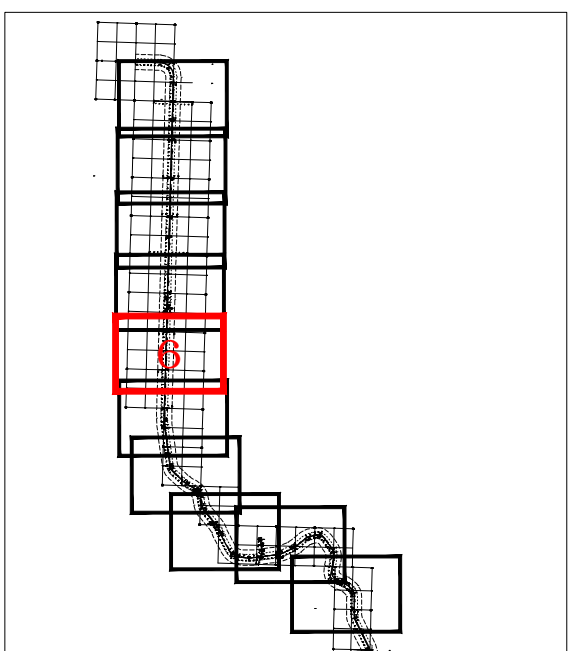
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Drawing No:
BM1305525

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Last Modified:	6/17/14

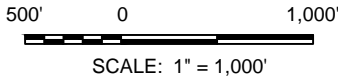
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5 of 10	

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SHEET LOCATION KEY
SCALE: 1" = 5 MILES

⊙ DENOTES APPROXIMATE LOCATION OF
STANDARD PENETRATION TEST BORING



BRAUN INTERTEC

11001 Hampshire Avenue So.
Minneapolis, MN 55438
PH. (952) 995-2000
FAX (952) 995-2020

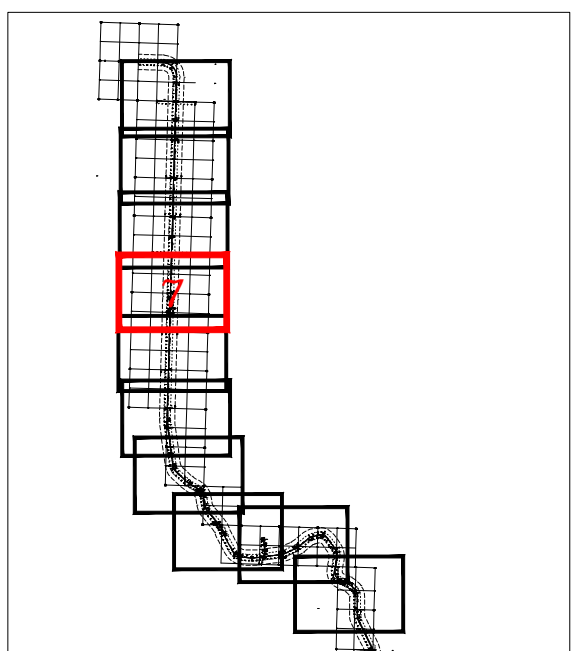
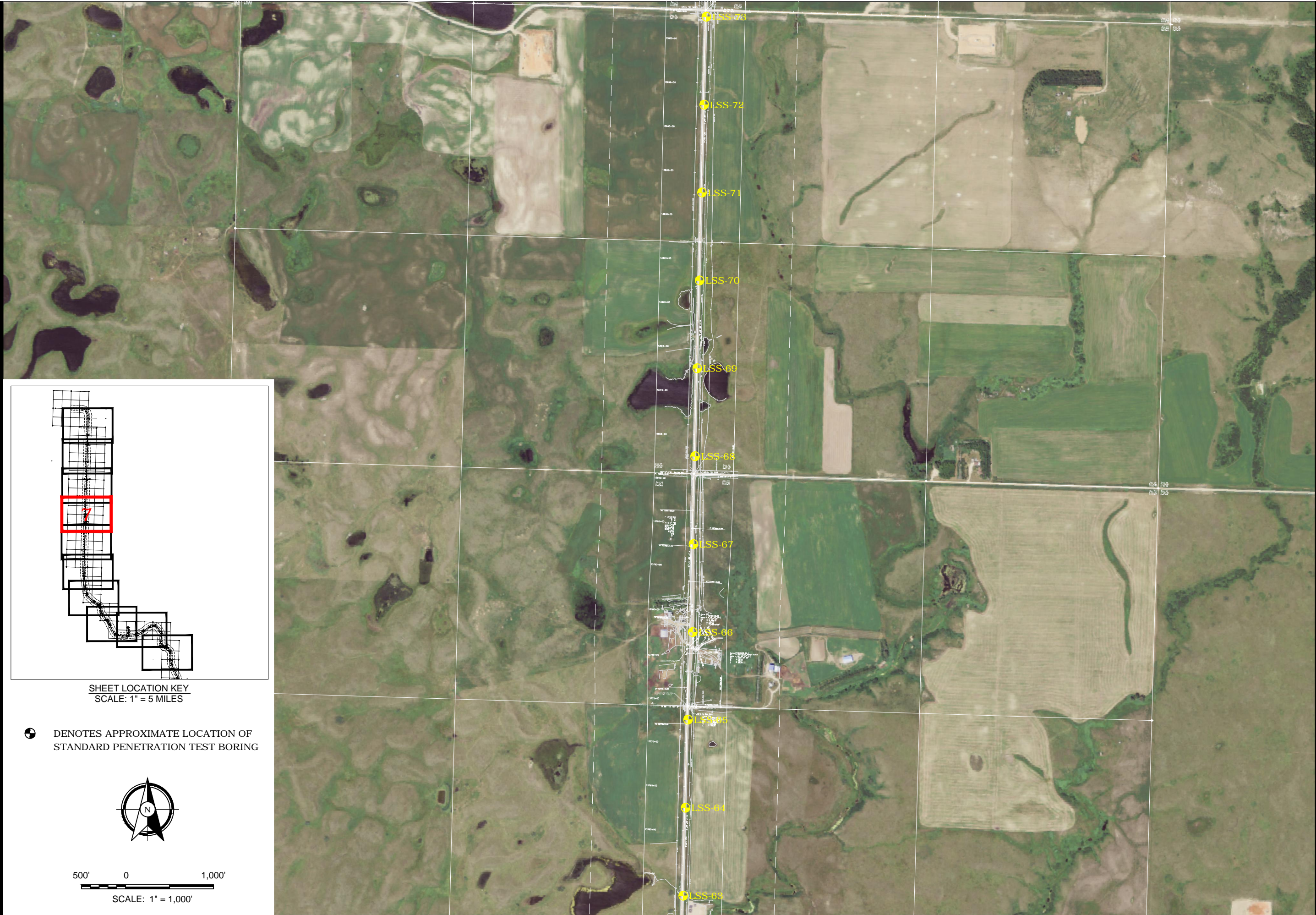
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ULTEIG ENGINEERING

SOIL BORING LOCATION SKETCH
GEOTECHNICAL EVALUATION
HIGHWAY 1804 RECONSTRUCTION
REFERENCE POINT 248.620 TO 267.000
NORTH OF NEW TOWN, NORTH DAKOTA

Project No: BM1305525	
Drawing No: BM1305525	
Scale:	1" = 1,000'
Drawn By:	BJB
Date Drawn:	6/17/14
Checked By:	EB
Last Modified:	6/17/14

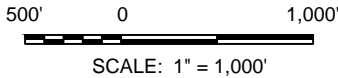
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6 of 10	

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SHEET LOCATION KEY
SCALE: 1" = 5 MILES

⊙ DENOTES APPROXIMATE LOCATION OF
STANDARD PENETRATION TEST BORING



BRAUN INTERTEC

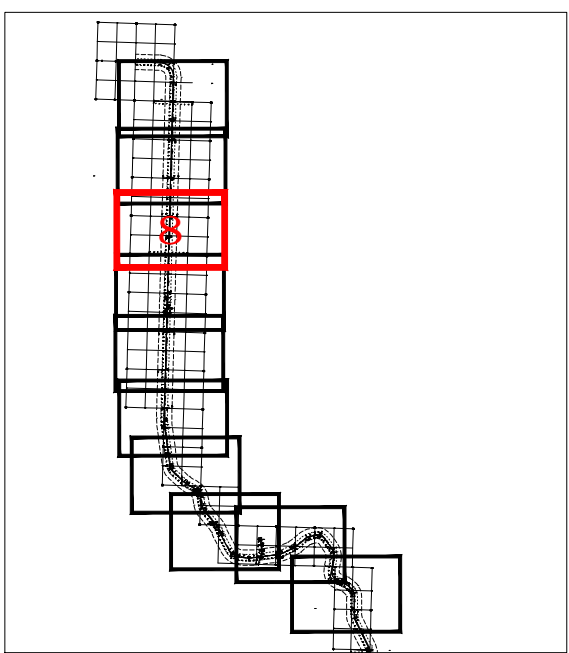
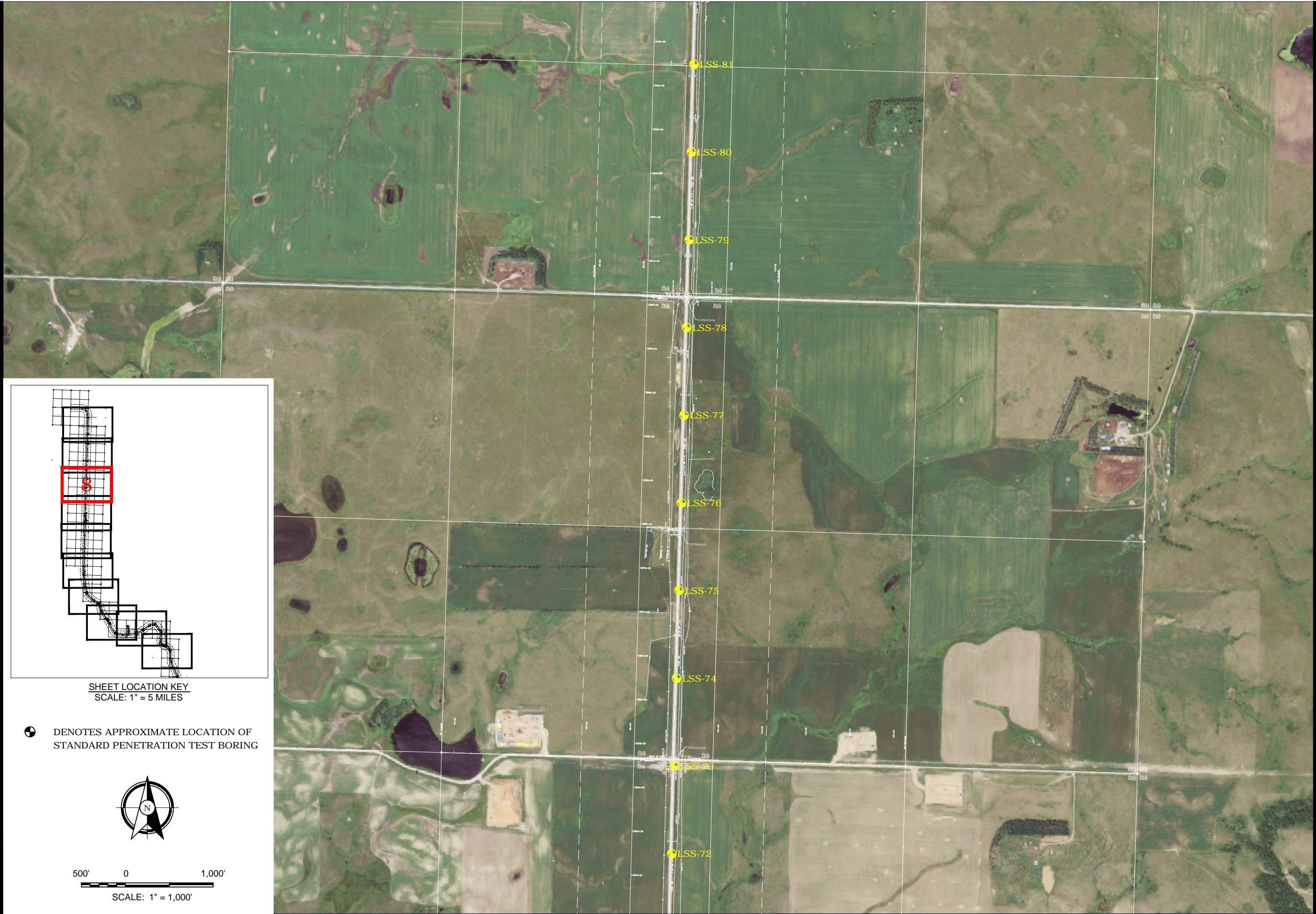
11001 Hampshire Avenue So.
Minneapolis, MN 55438
PH. (952) 995-2000
FAX (952) 995-2020

Base Dwg Provided By:
ULTEIG ENGINEERING

SOIL BORING LOCATION SKETCH
GEOTECHNICAL EVALUATION
HIGHWAY 1804 RECONSTRUCTION
REFERENCE POINT 248.620 TO 267.000
NORTH OF NEW TOWN, NORTH DAKOTA

Project No: BM1305525	
Drawing No: BM1305525	
Scale:	1" = 1,000'
Drawn By:	BJB
Date Drawn:	6/17/14
Checked By:	EB
Last Modified:	6/17/14
Sheet:	Fig:
7 of 10	

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SHEET LOCATION KEY
SCALE: 1" = 5 MILES

⊙ DENOTES APPROXIMATE LOCATION OF
STANDARD PENETRATION TEST BORING



500' 0 1,000'
SCALE: 1" = 1,000'

BRAUN INTERTEC

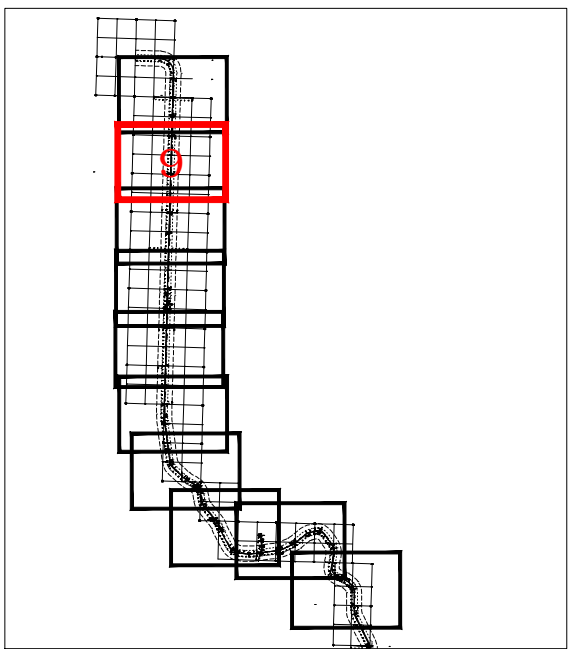
11001 Hampshire Avenue So.
Minneapolis, MN 55438
PH. (952) 995-2000
FAX (952) 995-2020

Base Dwg Provided By:
ULTEIG ENGINEERING

SOIL BORING LOCATION SKETCH
GEOTECHNICAL EVALUATION
HIGHWAY 1804 RECONSTRUCTION
REFERENCE POINT 248.620 TO 267.000
NORTH OF NEW TOWN, NORTH DAKOTA

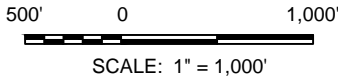
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Checked By:	EB
Last Modified:	6/17/14
Sheet:	Fig:
8 of 10	

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SHEET LOCATION KEY
SCALE: 1" = 5 MILES

⊙ DENOTES APPROXIMATE LOCATION OF
STANDARD PENETRATION TEST BORING



BRAUN INTERTEC

11001 Hampshire Avenue So.
Minneapolis, MN 55438
PH. (952) 995-2000
FAX (952) 995-2020

Base Dwg Provided By:
ULTEIG ENGINEERING

SOIL BORING LOCATION SKETCH
GEOTECHNICAL EVALUATION
HIGHWAY 1804 RECONSTRUCTION
REFERENCE POINT 248.620 TO 267.000
NORTH OF NEW TOWN, NORTH DAKOTA

Project No:
BM1305525

Drawing No:
BM1305525

Scale: 1" = 1,000'
Drawn By: BJB
Date Drawn: 6/17/14
Checked By: EB
Last Modified: 6/17/14

Sheet: 9 of 10 Fig:

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BRAUN INTERTEC

11001 Hampshire Avenue So.
Minneapolis, MN 55438
PH. (952) 995-2000
FAX (952) 995-2020

Base Dwg Provided By:
ULTEIG ENGINEERING

SOIL BORING LOCATION SKETCH
GEOTECHNICAL EVALUATION
HIGHWAY 1804 RECONSTRUCTION
REFERENCE POINT 248.620 TO 267.000
NORTH OF NEW TOWN, NORTH DAKOTA

Project No: BM1305525	
Drawing No: BM1305525	
Scale:	1" = 1,000'
Drawn By:	BJB
Date Drawn:	6/17/14
Checked By:	EB
Last Modified:	6/17/14
Sheet: 10 of 10	Fig:

CORES FROM MILEPOINTS FOR DEPTH DETERMINATION (MILESTONE)

North Dakota Department of Transportation, Materials & Research Division

SFN 17395 (Rev. 1-2003)

Project Number	SOIA-7-804(050)248, PCN 20326	Date Cored	2/11/14 - 2/13/14
Location	HIGHWAY 1804 NORTH OF NEW TOWN (RP 248.620 TO 267.000)	Sheet Number	1 OF 3

MILE POINT	RT. OR LT.	CORE NUMBER	DEPTH (inches)	WIDTH (feet)
248.625	RT	1	7.00	6.00
248.750	LT	147	7.50	7.00
248.875	RT	2	7.00	9.00
249.000	LT	146	9.00	11.00
249.125	RT	3	9.00	7.00
249.250	LT	145	9.50	6.50
249.375	RT	4	9.00	6.00
249.500	LT	144	9.00	4.00
249.625	RT	5	9.00	7.00
249.750	LT	143	7.50	5.00
249.875	RT	6	9.00	10.00
250.000	LT	142	12.00	9.00
250.125	RT	7	10.25	7.00
250.250	LT	141	9.50	9.00
250.375	RT	8	7.00	6.00
250.500	LT	140	7.50	13.00
250.625	RT	9	7.25	10.00
250.750	LT	139	8.50	7.00
250.875	RT	10	7.50	9.00
251.000	LT	138	9.50	5.00
251.125	RT	11	8.00	8.00
251.250	LT	137	10.00	4.00
251.375	RT	12	8.00	11.00
251.500	LT	136	7.75	5.00
251.625	RT	13	8.00	8.00
251.750	LT	135	7.25	7.00
251.875	RT	14	7.25	6.00
252.000	LT	134	7.50	8.50
252.125	RT	15	8.00	8.00
252.250	LT	133	9.00	11.00

MILE POINT	RT. OR LT.	CORE NUMBER	DEPTH (inches)	WIDTH (feet)
252.375	RT	16	8.00	7.00
252.500	LT	132	9.00	13.00
252.625	RT	17	9.00	11.00
252.750	LT	131	7.75	10.00
252.875	RT	18	7.00	12.00
253.000	LT	130	7.50	8.00
253.125	RT	19	8.00	10.00
253.250	LT	129	7.50	4.00
253.375	RT	20	7.50	6.00
253.500	LT	128	7.50	7.00
253.625	RT	21	8.50	6.00
253.750	LT	127	7.25	8.00
253.875	RT	22	7.00	5.00
254.000	LT	126	8.50	12.00
254.125	RT	23	8.25	5.00
254.250	LT	125	7.25	13.00
254.375	RT	24	8.75	10.00
254.500	LT	124	7.25	12.00
254.625	RT	25	8.00	12.00
254.750	LT	123	9.25	9.00
254.875	RT	26	7.50	7.00
255.000	LT	122	8.25	6.00
255.125	RT	27	8.00	3.00
255.250	LT	121	7.50	4.00
255.375	RT	28	7.00	10.00
255.500	LT	120	7.75	5.00
255.625	RT	29	7.75	11.00
255.750	LT	119	7.75	7.00
255.875	RT	30	8.00	7.00
256.000	LT	118	7.50	12.00

Average Asphalt
Depth
8.36

Maximum Asphalt
Depth
12.00

Minimum Asphalt
Depth
7.00

CORES FROM MILEPOINTS FOR DEPTH DETERMINATION (MILESTONE)

North Dakota Department of Transportation, Materials & Research Division

SFN 17395 (Rev. 1-2003)

Project Number	SOIA-7-804(050)248, PCN 20326	Date Cored	2/11/14 - 2/13/14
Location	HIGHWAY 1804 NORTH OF NEW TOWN (RP 248.620 TO 267.000)	Sheet Number	2 OF 3

MILE POINT	RT. OR LT.	CORE NUMBER	DEPTH (inches)	WIDTH (feet)
256.125	RT	31	8.50	5.00
256.250	LT	117	8.00	13.00
256.375	RT	32	7.75	11.00
256.500	LT	116	7.00	11.00
256.625	RT	33	7.50	7.00
256.750	LT	115	7.50	6.00
256.875	RT	34	7.50	5.00
257.000	LT	114	8.50	4.00
257.125	RT	35	8.50	7.00
257.250	LT	113	9.00	6.00
257.375	RT	36	7.50	11.00
257.500	LT	112	7.50	9.00
257.625	RT	37	7.00	8.00
257.750	LT	111	7.00	11.00
257.875	RT	38	7.50	10.00
258.000	LT	110	8.00	13.00
258.125	RT	39	7.50	7.00
258.250	LT	109	7.50	9.00
258.375	RT	40	7.50	4.00
258.500	LT	108	8.00	5.00
258.625	RT	41	8.00	12.00
258.750	LT	107	7.50	4.00
258.875	RT	42	7.75	9.00
259.000	LT	106	8.00	6.50
259.125	RT	43	7.25	8.00
259.250	LT	105	8.00	10.00
259.375	RT	44	7.50	3.50
259.500	LT	104	8.00	12.00
259.625	RT	45	7.75	6.50
259.750	LT	103	8.50	13.00

MILE POINT	RT. OR LT.	CORE NUMBER	DEPTH (inches)	WIDTH (feet)
259.875	RT	46	8.00	8.00
260.000	LT	102	8.00	11.00
260.125	RT	47	7.50	7.00
260.250	LT	101	8.50	9.00
260.375	RT	48	7.25	10.00
260.500	LT	100	10.50	8.00
260.625	RT	49	8.50	7.00
260.750	LT	99	10.00	6.00
260.875	RT	50	7.50	10.00
261.000	LT	98	9.00	14.00
261.125	RT	51	7.50	5.00
261.250	LT	97	9.00	12.50
261.375	RT	52	7.25	3.50
261.500	LT	96	9.50	9.00
261.625	RT	53	8.00	14.00
261.750	LT	95	9.25	8.50
261.875	RT	54	8.00	12.00
262.000	LT	94	9.00	7.00
262.125	RT	55	8.00	8.00
262.250	LT	93	8.75	4.00
262.375	RT	56	7.00	6.00
262.500	LT	92	9.00	5.00
262.625	RT	57	7.00	4.00
262.750	LT	91	9.00	8.50
262.875	RT	58	7.50	7.00
263.000	LT	90	10.50	9.00
263.125	RT	59	7.50	11.00
263.250	LT	89	12.00	11.00
263.375	RT	60	7.50	10.00
263.500	LT	88	9.50	13.00

Average Asphalt
Depth
8.36

Maximum Asphalt
Depth
12.00

Minimum Asphalt
Depth
7.00

North Dakota Department of Transportation, Materials & Research Division
SFN 17395 (Rev. 1-2003)

Project Number SOIA-7-804(050)248, PCN 20326	Date Cored 2/11/14 - 2/13/14
Location HIGHWAY 1804 NORTH OF NEW TOWN (RP 248.620 TO 267.000)	Sheet Number 3 OF 3

MILE POINT	RT. OR LT.	CORE NUMBER	DEPTH (inches)	WIDTH (feet)
263.625	RT	61	7.50	11.00
263.750	LT	87	9.00	12.00
263.875	RT	62	9.25	9.00
264.000	LT	86	10.50	11.00
264.125	RT	63	8.75	7.00
264.250	LT	85	9.25	9.00
264.375	RT	64	9.50	6.00
264.500	LT	84	9.00	6.50
264.625	RT	65	10.25	5.00
264.750	LT	83	11.00	4.00
264.875	RT	66	9.50	4.00
265.000	LT	82	9.00	6.00
265.125	RT	67	10.00	5.50
265.250	LT	81	8.50	10.50
265.375	RT	68	7.50	7.50
265.500	LT	80	9.75	9.50
265.625	RT	69	10.00	9.00
265.750	LT	79	9.00	13.00
265.875	RT	70	10.00	12.00
266.000	LT	78	9.00	9.00
266.125	RT	71	9.50	10.00
266.250	LT	77	9.00	7.00
266.375	RT	72	9.25	9.00
266.500	LT	76	10.00	6.00
266.625	RT	73	9.00	7.50
266.750	LT	75	9.50	5.00
266.875	RT	74	9.50	6.00

[illegible]

Average Asphalt Depth 8.36

Maximum Asphalt Depth 12.00

Minimum Asphalt Depth 7.00

Appendix B:
Log of Boring Sheets

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:13

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-01 LOCATION: Lat. 48.00081649; Long. -102.5001792 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/11/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (9) MDD = 121.0 pcf; OMC = 12.0%.			17	LL=35, PL=16, PI=19, P200=61.0%	
					19		
					16		
					10		
					22		
					22		
					19		
					19		
10.0		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 1 to 10 feet. Boring then backfilled.			18		

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:13

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-02 LOCATION: Lat. 48.0032442; Long. -102.5020691 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/11/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
1.0	FILL SM	FILL: Poorly Graded Sand with Gravel, brown, moist. (5") SILTY SAND, a little Gravel, trace Gravel, brown, moist. A-1-b (0) MDD = 134.0 pcf; OMC = 8.0%.			6	LL=NP, PL=NP, PI=NP, P200=13.4%	
					3		
					2		
					3		
					3		
					3		
					3		
10.0		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 1 to 10 feet. Boring then backfilled.			3		

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-03			
				LOCATION: Lat. 48.00593644; Long. -102.5028537 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/11/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			25	LL=51, PL=17, PI=34, P200=93.0%	
	CH	FAT CLAY, trace Sand and Gravel, brown, moist. A-7-6 (34) MDD = 122.0 pcf; OMC = 13.0%.			24		
					24		
					24		
					24		
7.0	CH	FAT CLAY, brown, moist.			26		
					28		
					33		
10.0		END OF BORING.			34		
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 7 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:13

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:13

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-03A LOCATION: Lat. 48.00723; Long. -102.502934 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/11/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.8	BIT	9 inches of Bituminous Pavement.					
1.3	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (6")					
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-7-6 (19) MDD = 125.0 pcf; OMC = 11.0%.			28	LL=46, PL=16, PI=30, P200=70.8%	
					23		
					18		
					19		
					18		
					18		
					24		
					28		
10.0					27		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.3 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:13

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-04 LOCATION: Lat. 48.008675; Long. -102.5029571 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/11/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.2	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (6")					
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-7-6 (24) MDD = 120.0 pcf; OMC = 13.0%.			26	LL=47, PL=17, PI=30, P200=81.4%	
					25		
					24		
					24		
					24		
					25		
					27		
					33		
10.0					30		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.2 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:13

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-04A LOCATION: Lat. 48.010048; Long. -102.50303 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/11/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.2	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (6")					
	CH	FAT CLAY, trace Gravel, brown, moist. A-7-6 (72) MDD = 112.0 pcf; OMC = 17.0%. - trace Lignite at 3 feet.			32	LL=88, PL=21, PI=67, P200=95.4%	
					35		
					36		
					29		
					28		
					25		
					26		
					32		
10.0					33		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.2 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-05 LOCATION: Lat. 48.01141301; Long. -102.5030623 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/11/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.1	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")					
	CH	FAT CLAY with SAND, trace Gravel, brown, moist. A-7-6 (29) MDD = 115.0 pcf; OMC = 13.0%.			29	LL=53, PL=18, PI=35, P200=80.8%	
					29		
					27		
					19		
					26		
					27		
					27		
					26		
10.0					26		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.1 to 10 feet.					
		Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-05A			
				LOCATION: Lat. 48.012793; Long. -102.503192 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/11/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.1	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")			25	LL=46, PL=17, PI=29, P200=76.0%	
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-7-6 (21) MDD = 118.0 pcf; OMC = 12.0%.			23		
					20		
					23		
					27		
					22		
					17		
					19		
10.0					23		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:14

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:14

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-06 LOCATION: Lat. 48.01409595; Long. -102.5038482 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/12/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.1	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")					
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-7-6 (23) MDD = 118.0 pcf; OMC = 12.0%.			23	LL=47, PL=18, PI=29, P200=78.9%	
					28		
					23		
					23		
					21		
					19		
					21		
		- trace Lignite at 7 feet.			19		
10.0					22		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:14

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-06A LOCATION: Lat. 48.01518; Long. -102.50508 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/12/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.1	FILL CH	FILL: Poorly Graded Sand with Gravel, brown, moist. (5") FAT CLAY, trace Gravel, brown, moist. A-7-6 (28) MDD = 113.0 pcf; OMC = 16.0%.			22	LL=51, PL=20, PI=31, P200=85.8%	
					25		
					22		
					23		
					22		
					23		
					23		
					23		
10.0					22		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:14

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-07 LOCATION: Lat. 48.01619622; Long. -102.5064587 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/12/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.8	BIT	9 inches of Bituminous Pavement.					
1.2	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5") SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (15) MDD = 127.0 pcf; OMC = 9.0%.			21	LL=42, PL=17, PI=25, P200=67.7%	
					21		
					19		
					20		
					18		
					16		
					17		
					19		
10.0					18		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.2 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:14

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-07A LOCATION: Lat. 48.016846; Long. -102.508283 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/12/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.9	BIT	10 inches of Bituminous Pavement.					
1.3	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")					
	CH	FAT CLAY with SAND, trace Gravel, brown, moist. A-7-6 (24) MDD = 116.0 pcf; OMC = 14.0%. - trace Lignite at 4 feet.			24	LL=51, PL=18, PI=33, P200=73.5%	
					27		
					23		
					30		
					29		
					23		
					22		
					28		
10.0					21		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.3 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:14

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-08 LOCATION: Lat. 48.01736459; Long. -102.5101532 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/12/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.8	BIT	9 inches of Bituminous Pavement.					
1.2	FILL CH	FILL: Poorly Graded Sand with Gravel, brown, moist. (5") FAT CLAY, trace Sand, brown, moist. A-7-6 (47) MDD = 118.0 pcf; OMC = 12.0%.			26	LL=62, PL=18, PI=44, P200=97.3%	
					24		
					25		
					26		
					23		
					25		
					27		
					25		
10.0					30		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.2 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-08A LOCATION: Lat. 48.017872; Long. -102.512067 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/12/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.8	BIT	9 inches of Bituminous Pavement.					
1.2	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")			28	LL=49, PL=17, PI=32, P200=72.2%	
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-7-6 (22) MDD = 117.0 pcf; OMC = 13.0%.			23		
					27		
					31		
					29		
					27		
		-trace Gravel at 7 feet.			28		
					31		
10.0					28		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.2 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:14

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-09 LOCATION: Lat. 48.01851465; Long. -102.513869 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/12/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.1	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")					
	CL	LEAN CLAY with SAND, trace Lignite, brown, moist. A-6 (15) MDD = 114.0 pcf; OMC = 13.0%.			33	LL=38, PL=16, PI=22, P200=75.5%	
					36		
					28		
					32		
					27		
		-trace Gravel from 6 to 8 feet.			32		
					32		
9.0				▽	30		
10.0	ML	SANDY SILT, brown, wet.			31		
		END OF BORING.					
		Water observed at a depth of 9 feet while drilling.					
		Bag sample collected from 1.1 to 9 feet.					
		Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-09A LOCATION: Lat. 48.019513; Long. -102.515272 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/12/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.8	BIT	10 inches of Bituminous Pavement.					
1.3	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")					
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-6 (14) MDD = 119.0 pcf; OMC = 12.0%. -trace Gravel at 3 feet. -trace Lignite at 4 feet.			23	LL=38, PL=17, PI=21, P200=73.8%	
					19		
					26		
					24		
					23		
					27		
					28		
					28		
10.0				▽	28		
		END OF BORING.					
		Water observed at a depth of 9 feet while drilling.					
		Bag sample collected from 1.3 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:14

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:14

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-10 LOCATION: Lat. 48.02084429; Long. -102.5160421 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/12/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.8	BIT	9 inches of Bituminous Pavement.					
1.2	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5") LEAN CLAY with SAND, trace Gravel, brown, moist. A-6 (18) MDD = 121.0 pcf; OMC = 13.0%. -trace Organics at 5 feet.			24	LL=40, PL=17, PI=23, P200=80.5%	
					13		
					21		
					18		
					27		
					18		
					20		
					20		
10.0		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 1.2 to 10 feet. Boring then backfilled.			19		

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:14

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-10A LOCATION: Lat. 48.022228; Long. -102.516134 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/12/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.1	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")					
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (7) MDD = 124.0 pcf; OMC = 12.0%.			28	LL=30, PL=16, PI=14, P200=69.3%	
					16		
					19		
					23		
					18		
					18		
					19		
8.0	ML	SANDY SILT, brown, moist.				13	
10.0					12		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.1 to 8 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:15

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-11 LOCATION: Lat. 48.02358143; Long. -102.5158143 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/12/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand, fine-grained, brown, moist. (5")			14	LL=33, PL=21, PI=12, P200=93.2%	
	CL	LEAN CLAY, a little Sand, brown, moist. A-6 (11) MDD = 122.0 pcf; OMC = 12.0%.			15		
					15		
					16		
					14		
					12		
					14		
					16		
10.0					16		
		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 1 to 10 feet. Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:15

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-11A LOCATION: Lat. 48.02494; Long. -102.515554 See Sketch.		
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/12/13	SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes
0.0						
0.6	BIT	7 inches of Bituminous Pavement.				
1.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")			14	LL=35, PL=16, PI=19, P200=63.4%
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (9) MDD = 126.0 pcf; OMC = 11.0%.			23	
					17	
					13	
		-trace Lignite at 5 feet.			24	
					22	
		-inclusions of Claystone bedrock at 7 feet.			20	
					19	
10.0					20	
		END OF BORING.				
		Water not observed immediately after withdrawal of auger.				
		Bag sample collected from 1 to 10 feet.				
		Boring then backfilled.				

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:15

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-12 LOCATION: Lat. 48.0262946; Long. -102.5152662 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/12/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
1.0	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5") LEAN CLAY, a little Sand, trace Gravel, brown, moist. A-7-6 (25) MDD = 119.0 pcf; OMC = 12.0%.			24	LL=46, PL=18, PI=28, P200=86.3%	
					25		
					25		
					25		
					22		
					23		
					22		
					20		
10.0					21		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:15

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-12A LOCATION: Lat. 48.027682; Long. -102.515184 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/12/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")			14	LL=34, PL=15, PI=19, P200=67.0%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (10) MDD = 125.0 pcf; OMC = 12.0%.			15		
					15		
					14		
					13		
					15		
					13		
					19		
10.0					18		
		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 1 to 10 feet. Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-13			
				LOCATION: Lat. 48.02901913; Long. -102.5155957 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/13/13		SCALE: 1" = 4'	
Depth feet 0.0	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.7	BIT	8 inches of Bituminous Pavement.					
1.1	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5") SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (9) MDD = 123.0 pcf; OMC = 12.0%.			15	LL=34, PL=15, PI=19, P200=60.9%	
					14		
					19		
					18		
					17		
					14		
					14		
					15		
10.0		END OF BORING.			16		
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:15

(See Descriptive Terminology sheet for explanation of abbreviations)

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-13A LOCATION: Lat. 48.030202; Long. -102.516515 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/13/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") LEAN CLAY with SAND, trace Gravel, brown, moist. A-7-6 (18) MDD = 120.0 pcf; OMC = 13.0%.			22	LL=44, PL=18, PI=26, P200=74.7%	
					22		
					21		
					21		
					18		
					19		
					23		
					19		
					20		
10.0		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 0.9 to 10 feet. Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:15

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-14 LOCATION: Lat. 48.03134079; Long. -102.517755 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/13/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			16	LL=42, PL=16, PI=26, P200=67.6%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (15) MDD = 121.0 pcf; OMC = 14.0%.			20		
					26		
					24		
					21		
					19		
					17		
					27		
10.0					18		
		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 0.9 to 10 feet. Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-14A LOCATION: Lat. 48.032422; Long. -102.519 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/13/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") SANDY LEAN CLAY, a little Gravel, brown, moist. A-6 (10) MDD = 127.0 pcf; OMC = 11.0%.			17	LL=37, PL=15, PI=22, P200=60.4%	
					16		
					17		
					18		
					18		
					15		
					17		
					13		
					18		
10.0		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:15

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:15

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-15 LOCATION: Lat. 48.03353149; Long. -102.5202101 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/13/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (13) MDD = 121.0 pcf; OMC = 12.0%.			17	LL=40, PL=15, PI=25, P200=63.0%	
					18		
					17		
					17		
					17		
					19		
					18		
					18		
					19		
10.0		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:15

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-15A LOCATION: Lat. 48.034454; Long. -102.521704 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/13/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
1.0	FILL SC	FILL: Poorly Graded Sand with Gravel, brown, moist. (5") CLAYEY SAND, a little Gravel, brown, moist. A-6 (3) MDD = 131.0 pcf; OMC = 9.0%.			15	LL=30, PL=16, PI=14, P200=45.6%	
					11		
					13		
					14		
					13		
					14		
					9		
					10		
					15		
10.0		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected 1 to 10 feet. Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:15

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-16 LOCATION: Lat. 48.03500329; Long. -102.5236375 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/13/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			17	LL=30, PL=14, PI=16, P200=39.2%	
	SC	CLAYEY SAND, a little Gravel, brown, moist. A-6 (2) MDD = 135.0 pcf; OMC = 8.0%.			19		
					22		
					20		
					15		
8.0	SC	POORLY GRADED SAND with GRAVEL, brown, moist.			12		
					12		
10.0		END OF BORING.			8		
		Water not observed immediately after withdrawal of auger.			9		
		Bag sample collected from 0.9 to 8 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:16

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-16A LOCATION: Lat. 48.035062; Long. -102.525691 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/13/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
1.0	FILL SC	FILL: Poorly Graded Sand with Gravel, brown, moist. (5") CLAYEY SAND, a little Gravel, brown, moist. A-6 (1) MDD = 134.0 pcf; OMC = 9.0%.			12	LL=26, PL=15, PI=11; P200=38.8%	
					17		
					18		
					20		
					12		
					12		
					13		
					11		
10.0					8		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:16

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-17 LOCATION: Lat. 48.03472313; Long. -102.5276938 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/13/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")			21	LL=37, PL=15, PI=22, P200=54.4%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (8) MDD = 123.0 pcf; OMC = 10.0%.			19		
					19		
					17		
					16		
					16		
					18		
					19		
10.0					20		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:16

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-18 LOCATION: Lat. 48.03367311; Long. -102.5314552 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/13/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") SANDY LEAN CLAY, a little Gravel, brown, moist. A-6 (8) MDD = 130.0 pcf; OMC = 9.0%.			19	LL=38, PL=14, PI=24, P200=51.6%	
					16		
					18		
					14		
					12		
					11		
					9		
					12		
					18		
10.0		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-19			
				LOCATION: Lat. 48.0318821; Long. -102.5345473 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/13/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			13	LL=31, PL=15, PI=16, P200=51.9%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (5) MDD = 127.0 pcf; OMC = 10.0%.			10		
					13		
					18		
					14		
					13		
					10		
					13		
10.0					14		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:16

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:16

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-20 LOCATION: Lat. 48.03012026; Long. -102.5376813 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/13/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")			26	LL=35, PL=18, PI=17, P200=75.2%	
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-6 (11) MDD = 123.0 pcf; OMC = 12.0%.			25		
					27		
					21		
					24		
6.0	CH	FAT CLAY, gray, moist.			23		
					21		
					21		
10.0		END OF BORING.			22		
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 6 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-21 LOCATION: Lat. 48.02884877; Long. -102.5413015 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/13/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.6	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (11")					
	CL	LEAN CLAY, trace Gravel, brown, moist. A-6 (17) MDD = 119.0 pcf; OMC = 13.0%.			24	LL=40, PL=21, PI=19, P200=87.0%	
					24		
					19		
6.0					24		
	LI	LIGNITE, black, moist.			27		
7.0	CL	LEAN CLAY, brown, moist.			29		
					25		
10.0					21		
END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected 1.6 to 6 feet. Boring then backfilled.							

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-22			
				LOCATION: Lat. 48.02770765; Long. -102.5450189 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/13/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.1	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")			17	LL=37, PL=13, PI=24, P200=58.8%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (11) MDD = 129.0 pcf; OMC = 10.0%.			16		
					16		
					16		
					15		
					17		
					18		
10.0					17		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected 1.1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:16

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:16

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-23 LOCATION: Lat. 48.02715701; Long. -102.5490234 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/16/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") SANDY LEAN CLAY, a little Gravel, brown, moist. A-6 (7) MDD = 130.0 pcf; OMC = 10.0%.			15	LL=34, PL=15, PI=19, P200=55.2%	
					20		
					17		
					21		
					8		
					10		
					14		
					15		
10.0		END OF BORING.			18		
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected 1 to 10 feet.					
		Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-24 LOCATION: Lat. 48.02673855; Long. -102.5530614 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/16/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (13) MDD = 126.0 pcf; OMC = 11.0%.			18	LL=38, PL=14, PI=24, P200=65.9%	
					18		
					17		
					17		
					15		
					15		
					16		
					16		
					16		
10.0		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:16

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:16

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-25 LOCATION: Lat. 48.02631925; Long. -102.5570986 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/16/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (11) MDD = 125.0 pcf; OMC = 11.0%.			25	LL=38, PL=16, PI=22, P200=64.0%	
					22		
					19		
					17		
					17		
					15		
					15		
					16		
					14		
10.0		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:17

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-26 LOCATION: Lat. 48.02591867; Long. -102.5611416 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/16/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (14) MDD = 125.0 pcf; OMC = 11.0%.			19	LL=39, PL=15, PI=24, P200=67.2%	
					20		
					20		
					19		
					16		
					17		
					17		
					16		
					17		
10.0		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:17

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-27 LOCATION: Lat. 48.02587152; Long. -102.565228 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/16/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			17	LL=38, PL=16, PI=22, P200=74.8%	
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-6 (15) MDD = 119.0 pcf; OMC = 11.0%.			20		
					20		
					26		
					18		
					24		
					24		
					23		
10.0					23		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:17

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-28 LOCATION: Lat. 48.02617451; Long. -102.5692942 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/16/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") LEAN CLAY with SAND, trace Gravel, brown, moist. A-6 (15) MDD = 125.0 pcf; OMC = 11.0%.			24	LL=39, PL=15, PI=24, P200=70.4%	
					20		
					18		
					19		
					18		
					22		
					21		
					22		
					23		
10.0		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:17

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-29 LOCATION: Lat. 48.02752235; Long. -102.5728601 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/16/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") LEAN CLAY with SAND, trace Gravel, brown, moist. A-6 (15) MDD = 122.0 pcf; OMC = 13.0%.			24	LL=40, PL=16, PI=24, P200=70.2%	
					16		
					14		
					19		
					18		
					18		
					19		
					19		
					23		
10.0		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:17

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-30 LOCATION: Lat. 48.02980264; Long. -102.5751323 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/16/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			13	LL=39, PL=20, PI=19, P200=80.7%	
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-6 (15) MDD = 116.0 pcf; OMC = 13.0%.			28		
					32		
					27		
					22		
					24		
					19		
					19		
10.0					18		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-31 LOCATION: Lat. 48.0321843; Long. -102.5771512 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/16/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			20	LL=35, PL=18, PI=17, P200=61.8%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (8) MDD = 127.0 pcf; OMC = 10.0%.			30		
					16		
4.0	SC	CLAYEY SAND with GRAVEL, brown, moist. A-2-4 (0) MDD = 141.0 pcf; OMC = 7.0%.			11	LL=25, PL=16, PI=9, P200=22.2%	
					4		
					3		
					3		
					5		
10.0					5		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 4 feet.					
		Bag sample collected from 4 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:17

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-32 LOCATION: Lat. 48.03458882; Long. -102.579116 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/16/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			16	LL=36, PL=16, PI=20, P200=64.0%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (10) MDD = 128.0 pcf; OMC = 10.0%.			19		
					19		
					19		
					17		
7.0					15		
	CL	LEAN CLAY with SAND, brown, moist.			18		
					20		
10.0					19		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 7 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:17

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-33 LOCATION: Lat. 48.03706336; Long. -102.580862 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/16/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")			14	LL=37, PL=14, PI=23, P200=63.2%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (11) MDD = 127.0 pcf; OMC = 10.0%.			15		
					16		
					14		
					14		
					17		
					18		
					15		
10.0					14		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-34			
				LOCATION: Lat. 48.03920368; Long. -102.5834082 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/16/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			19	LL=39, PL=17, PI=22, P200=69.7%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (13) MDD = 125.0 pcf; OMC = 11.0%.			20		
					19		
					20		
					20		
					20		
					20		
					16		
10.0					17		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:17

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:17

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-35 LOCATION: Lat. 48.04125941; Long. -102.5861093 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/16/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			21	LL=39, PL=15, PI=24, P200=68.8%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (14) MDD = 125.0 pcf; OMC = 11.0%.			21		
					21		
					20		
					19		
					16		
					16		
					15		
10.0					15		
		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 0.9 to 10 feet. Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:17

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-36 LOCATION: Lat. 48.04333282; Long. -102.5887832 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/16/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			25	LL=40, PL=17, PI=23, P200=75.3%	
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-6 (16) MDD = 122.0 pcf; OMC = 12.0%.			29		
					28		
					27		
					26		
					25		
					22		
					23		
10.0					26		
		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 0.9 to 10 feet. Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-37			
				LOCATION: Lat. 48.04588949; Long. -102.5902664 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/16/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")			17	LL=42, PL=15, PI=27, P200=66.1%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (15) MDD = 126.0 pcf; OMC = 11.0%.			19		
					18		
					19		
					17		
					15		
					16		
					16		
10.0					16		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:18

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-38			
				LOCATION: Lat. 48.04858285; Long. -102.5909846 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/16/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			16	LL=38, PL=15, PI=23, P200=61.5%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (11) MDD = 126.0 pcf; OMC = 11.0%.			17		
					20		
					19		
					20		
					18		
					17		
					18		
10.0					15		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:18

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:18

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-39 LOCATION: Lat. 48.05086443; Long. -102.5932326 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/16/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			20	LL=41, PL=16, PI=25, P200=64.1%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (13) MDD = 123.0 pcf; OMC = 12.0%.			19		
					19		
					19		
					18		
					18		
					15		
					19		
10.0					16		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-40 LOCATION: Lat. 48.05227189; Long. -102.596736 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (12) MDD = 128.0 pcf; OMC = 11.0%.			16	LL=38, PL=14, PI=24, P200=62.7%	
					16		
					15		
					15		
					14		
					14		
					14		
					15		
					17		
10.0		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:18

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:18

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-41 LOCATION: Lat. 48.05370617; Long. -102.6002223 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			21	LL=37, PL=16, PI=21, P200=62.5%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (10) MDD = 123.0 pcf; OMC = 12.0%.			21		
					20		
					20		
					16		
					15		
					17		
					13		
10.0					13		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:18

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-42 LOCATION: Lat. 48.05550185; Long. -102.6033077 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			21	LL=40, PL=17, PI=23, P200=74.1%	
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-6 (15) MDD = 123.0 pcf; OMC = 12.0%.			21		
					27		
					23		
					22		
					22		
					21		
					20		
10.0		END OF BORING.			20		
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:18

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-43 LOCATION: Lat. 48.05731241; Long. -102.6063756 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (10) MDD = 125.0 pcf; OMC = 11.0%.			13	LL=37, PL=16, PI=21, P200=61.7%	
					26		
					18		
					23		
					19		
					19		
					18		
					18		
					19		
10.0		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:18

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-44 LOCATION: Lat. 48.05967701; Long. -102.6084542 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (15) MDD = 123.0 pcf; OMC = 12.0%.			21	LL=43, PL=16, PI=27, P200=64.9%	
					25		
					22		
					19		
					18		
					17		
					17		
					18		
					17		
10.0		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:18

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-45 LOCATION: Lat. 48.0623756; Long. -102.6091493 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") SANDY LEAN CLAY, a little Gravel, brown, moist. A-6 (13) MDD = 129.0 pcf; OMC = 10.0%.			22	LL=40, PL=15, PI=25, P200=62.9%	
					22		
					19		
					19		
					25		
					21		
					19		
					16		
					16		
10.0		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 1 to 10 feet. Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-46			
				LOCATION: Lat. 48.06507903; Long. -102.609796 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (13) MDD = 124.0 pcf; OMC = 12.0%.			25	LL=38, PL=15, PI=23, P200=67.4%	
					18		
					16		
					18		
					17		
					20		
					18		
					17		
10.0					17		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:18

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:19

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-47 LOCATION: Lat. 48.06778265; Long. -102.6104459 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.8	BIT	9 inches of Bituminous Pavement.					
1.1	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			19	LL=41, PL=16, PI=25, P200=67.3%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (14) MDD = 122.0 pcf; OMC = 12.0%.			19		
					18		
					22		
					18		
					19		
8.0					18		
	CL	LEAN CLAY with SAND, brown, moist.			24		
10.0					24		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.1 to 8 feet.					
		Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-48			
				LOCATION: Lat. 48.07048654; Long. -102.6110948 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			23	LL=42, PL=16, PI=26, P200=69.5%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (16) MDD = 120.0 pcf; OMC = 13.0%.			22		
					22		
					19		
					18		
					21		
					20		
					20		
10.0					17		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:19

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-49 LOCATION: Lat. 48.07319065; Long. -102.6117403 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (16) MDD = 122.0 pcf; OMC = 12.0%.			20	LL=43, PL=15, PI=28, P200=66.6%	
					17		
					18		
					17		
					19		
					20		
					19		
					18		
10.0		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 1 to 10 feet. Boring then backfilled.			18		

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:19

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-50 LOCATION: Lat. 48.07589952; Long. -102.6123609 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (16) MDD = 123.0 pcf; OMC = 12.0%.			19	LL=42, PL=14, PI=28, P200=67.5%	
					19		
					17		
					19		
					19		
					20		
					22		
					20		
10.0		END OF BORING.			19		
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:19

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-51 LOCATION: Lat. 48.07863855; Long. -102.6124932 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.8	BIT	9 inches of Bituminous Pavement.					
1.1	FILL SC	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") CLAYEY SAND, a little Gravel, brown, moist. A-6 (6) MDD = 127.0 pcf; OMC = 11.0%.			19	LL=38, PL=17, PI=21, P200=49.1%	
					22		
					21		
					23		
					24		
					16		
					15		
					9		
10.0					9		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:19

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-52 LOCATION: Lat. 48.08137886; Long. -102.6124911 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.8	BIT	9 inches of Bituminous Pavement.					
1.2	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5") SANDY LEAN CLAY, a little Gravel, brown, moist. A-6 (10) MDD = 123.0 pcf; OMC = 11.0%.			20	LL=39, PL=16, PI=23, P200=57.1%	
					27		
					17		
					17		
					14		
					16		
					17		
					18		
10.0					22		
		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 1.2 to 10 feet. Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:19

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-53			
				LOCATION: Lat. 48.08411854; Long. -102.6124926 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			11	LL=36, PL=15, PI=21, P200=47.0%	
	SC	CLAYEY SAND, a little Gravel, brown, moist. A-6 (6) MDD = 128.0 pcf; OMC = 10.0%.			12		
					13		
					14		
					13		
6.0	CL	SANDY LEAN CLAY, trace Gravel, brown, moist.			13		
					17		
					16		
10.0					18		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 6 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:19

(See Descriptive Terminology sheet for explanation of abbreviations)

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-54 LOCATION: Lat. 48.08685802; Long. -102.6124923 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4") SANDY LEAN CLAY, a little Gravel, brown, moist. A-6 (11) MDD = 124.0 pcf; OMC = 11.0%.			22	LL=40, PL=15, PI=25, P200=57.6%	
					25		
					18		
					14		
					17		
					17		
					16		
					18		
10.0					18		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:19

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-55 LOCATION: Lat. 48.08959741; Long. -102.612495 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")			16	LL=39, PL=14, PI=25, P200=61.6%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (12) MDD = 121.0 pcf; OMC = 11.0%.			16		
					17		
					17		
					19		
					20		
					21		
					20		
					20		
10.0		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-56			
				LOCATION: Lat. 48.09233672; Long. -102.6124961 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")			23	LL=38, PL=16, PI=22, P200=56.1%	
	CL	SANDY LEAN CLAY, a little Gravel, brown, moist. A-6 (9) MDD = 121.0 pcf; OMC = 13.0%.			18		
					15		
					18		
					16		
					17		
					17		
					20		
10.0					18		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:19

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:19

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-57 LOCATION: Lat. 48.09507606; Long. -102.6124953 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			20	LL=37, PL=14, PI=23, P200=59.3%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (10) MDD = 120.0 pcf; OMC = 11.0%.			19		
					12		
					16		
					18		
6.0	CL	LEAN CLAY with SAND, brown, moist.			18		
					17		
					16		
10.0					16		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 6 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:20

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-58 LOCATION: Lat. 48.09781589; Long. -102.6125018 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (4")			16	LL=40, PL=15, PI=25, P200=63.3%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (13) MDD = 122.0 pcf; OMC = 11.0%.			17		
					18		
					20		
					16		
					16		
					16		
					15		
10.0					15		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:20

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-59 LOCATION: Lat. 48.10055524; Long. -102.6125043 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.1	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")					
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (11) MDD = 120.0 pcf; OMC = 12.0%.			16	LL=39, PL=16, PI=23, P200=61.9%	
					22		
					23		
					22		
					18		
					16		
					18		
					17		
10.0					18		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.1 to 10 feet.					
		Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-60 LOCATION: Lat. 48.10329459; Long. -102.6125031 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5")			17	LL=38, PL=14, PI=24, P200=62.0%	
	CL	SANDY LEAN CLAY, a little Gravel, brown, moist. A-6 (12) MDD = 124.0 pcf; OMC = 12.0%.			19		
					16		
					19		
					18		
					17		
					18		
					20		
10.0					19		
		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 1 to 10 feet. Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:20

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:20

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-61 LOCATION: Lat. 48.10603424; Long. -102.6125073 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/17/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.1	FILL CL	FILL: Poorly Graded Sand with Gravel, brown, moist. (5") SANDY LEAN CLAY, a little Gravel, brown, moist. A-6 (10) MDD = 120.0 pcf; OMC = 13.0%.			18	LL=38, PL=14, PI=24, P200=58.4%	
					17		
					18		
					19		
					14		
					19		
					22		
					23		
10.0					19		
		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 1.1 to 10 feet. Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:20

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-62 LOCATION: Lat. 48.1087738; Long. -102.6125125 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL CL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (4") SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (11) MDD = 124.0 pcf; OMC = 12.0%.			17	LL=41, PL=18, PI=23, P200=60.8%	
					18		
					15		
					15		
					19		
					16		
					17		
					16		
10.0					16		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-63 LOCATION: Lat. 48.11151487; Long. -102.6125117 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL CL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (4") SANDY LEAN CLAY, a little Gravel, brown, wet. A-7-6 (10) MDD = 121.0 pcf; OMC = 12.0%. -moist below 4 feet.			25	LL=43, PL=17, PI=26, P200=54.0%	
					25		
					23		
					16		
					12		
					18		
					18		
					20		
10.0					23		
		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 1 to 10 feet. Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:20

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-64 LOCATION: Lat. 48.11425493; Long. -102.6125091 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL CL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (4") SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (13) MDD = 124.0 pcf; OMC = 12.0%.			15	LL=39, PL=15, PI=24, P200=64.5%	
					17		
					18		
					15		
					15		
					15		
					14		
					20		
10.0					18		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-65			
				LOCATION: Lat. 48.11699502; Long. -102.6125119 See Sketch.			
DRILLER: L. Smilie		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (5")			19	LL=39, PL=16, PI=23, P200=62.2%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (11) MDD = 119.0 pcf; OMC = 13.0%.			25		
					24		
					20		
					24		
					21		
					18		
					20		
10.0					19		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:20

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-66 LOCATION: Lat. 48.11973433; Long. -102.612399 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL CL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (4") SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (16) MDD = 121.0 pcf; OMC = 12.0%. -trace roots and Organics, black from 4 to 5 feet.			15	LL=44, PL=15, PI=29, P200=63.6%	
					17		
					12		
					22		
					11		
					14		
					13		
					19		
10.0		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 1 to 10 feet. Boring then backfilled.			19		

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:20

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:20

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-67 LOCATION: Lat. 48.12247384; Long. -102.6124838 See Sketch.			
DRILLER: L. Smilie		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.5	BIT	6 inches of Bituminous Pavement.					
0.8	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (4")			23	LL=43, PL=16, PI=27, P200=65.0%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (15) MDD = 123.0 pcf; OMC = 13.0%.			19		
					22		
					20		
					17		
					17		
					16		
					16		
10.0					16		
		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 0.8 to 10 feet. Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-68			
				LOCATION: Lat. 48.12521358; Long. -102.6125152 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (4")			21	LL=41, PL=15, PI=26, P200=63.0%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (13) MDD = 123.0 pcf; OMC = 12.0%. -wet at 2 feet.			32		
					19		
					19		
					16		
					18		
					18		
					18		
10.0		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:20

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-69 LOCATION: Lat. 48.1279534; Long. -102.6125301 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL CL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (4") SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (15) MDD = 121.0 pcf; OMC = 11.0%. -wet at 4 feet.			18	LL=42, PL=15, PI=27, P200=64.5%	
					18		
					18		
					23		
					20		
					20		
					19		
					19		
10.0					18		
		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 1 to 10 feet. Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:21

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:21

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-70 LOCATION: Lat. 48.13069319; Long. -102.6125304 See Sketch.			
DRILLER: L. Smilie		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.5	BIT	6 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (5")			34	LL=44, PL=18, PI=26, P200=67.5%	
	CL	SANDY LEAN CLAY, trace Gravel, black to dark brown, moist. A-7-6 (16) MDD = 113.0 pcf; OMC = 15.0%.			22		
					18		
					24		
					22		
6.5	CH	SANDY FAT CLAY, a little Gravel, brown, moist. A-7-6 (22) MDD = 122.0 pcf; OMC = 12.0%.			20	LL=50, PL=16, PI=34, P200=70.0%	
					18		
					20		
10.0					19		
END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 0.9 to 6.5 feet and 6.5 to 10 feet. Boring then backfilled.							

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:21

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-71 LOCATION: Lat. 48.13343252; Long. -102.6125371 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (4")			20	LL=42, PL=16, PI=26, P200=50.9%	
	CL	SANDY LEAN CLAY, a little Gravel, brown, moist. A-7-6 (9) MDD = 128.0 pcf; OMC = 10.0%.			23		
					22		
5.0					11		
	SC	CLAYEY SAND with GRAVEL, brown, moist. A-2-6 (1) MDD = 140.0 pcf; OMC = 6.0%.			5	LL=28, PL=12, PI=16, P200=33.2%	
					7		
					10		
10.0					8		
					9		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 5 feet and 5 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:21

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-72 LOCATION: Lat. 48.13617287; Long. -102.6125447 See Sketch.			
DRILLER: L. Smilie		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.4	BIT	5 inches of Bituminous Pavement.					
0.9	FILL SC	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (6") CLAYEY SAND, trace Gravel, brown, moist. A-6 (5) MDD = 118.0 pcf; OMC = 9.0%. -damp from 2 to 4 feet. -trace Organics, black from 4 to 7 feet.			17	LL=34, PL=17, PI=17, P200=47.7%	
					9		
					10		
					17		
					24		
					22		
					17		
					13		
10.0					16		
		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 0.9 to 10 feet. Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:21

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-73 LOCATION: Lat. 48.1389133; Long. -102.6125505 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL CL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (4") SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (10) MDD = 124.0 pcf; OMC = 11.0%. -wet at 4 feet.			11	LL=37, PL=15, PI=22, P200=59.1%	
					15		
					19		
					23		
					22		
					18		
					19		
8.0	SM	SILTY SAND, fine-grained, with Clay inclusions, damp to moist.			4		
					9		
10.0		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 8 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-74 LOCATION: Lat. 48.1416537; Long. -102.6125463 See Sketch.			
DRILLER: L. Smilie		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.2	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (6")					
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (9) MDD = 124.0 pcf; OMC = 12.0%.			23	LL=37, PL=15, PI=22, P200=57.0%	
					21		
					22		
					18		
6.0	CL	SANDY LEAN CLAY, trace Gravel and Organics, black, moist. A-6 (10) MDD = 117.0 pcf; OMC = 13.0%.			11	LL=39, PL=19, PI=20, P200=61.9%	
					19		
					24		
					31		
10.0		END OF BORING.			24		
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.2 to 6 feet and 6 to 10 feet.					
		Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-75			
				LOCATION: Lat. 48.14439323; Long. -102.6125396 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (5")			16	LL=43, PL=17, PI=26, P200=66.1%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (15) MDD = 123.0 pcf; OMC = 12.0%.			19		
					18		
					19		
					22		
					21		
					19		
					19		
10.0					19		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:21

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:21

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-76 LOCATION: Lat. 48.14713303; Long. -102.6125384 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.5	BIT	6 inches of Bituminous Pavement.					
0.9	FILL CL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (5") SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (11) MDD = 124.0 pcf; OMC = 11.0%.			17	LL=39, PL=16, PI=23, P200=61.1%	
					19		
					14		
					18		
					18		
					24		
					19		
					18		
10.0					19		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:21

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-77 LOCATION: Lat. 48.14987323; Long. -102.6125305 See Sketch.			
DRILLER: L. Smilie		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.5	BIT	6 inches of Bituminous Pavement.					
1.1	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (7")					
	CL	LEAN CLAY with SAND, trace Gravel, brown, damp. A-7-6 (21) MDD = 120.0 pcf; OMC = 13.0%. -moist below 2 feet.			14	LL=45, PL=17, PI=28, P200=78.6%	
					22		
					22		
					17		
					25		
					20		
					26		
					27		
10.0					21		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.1 to 10 feet.					
		Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-78			
				LOCATION: Lat. 48.15261353; Long. -102.61252 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.5	BIT	6 inches of Bituminous Pavement.					
0.8	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (4")			21	LL=44, PL=17, PI=27, P200=75.7%	
	CL	LEAN CLAY with SAND, brown, moist. A-7-6 (19) MDD = 118.0 pcf; OMC = 13.0%.			25		
					27		
					26		
					30		
					24		
					17		
					20		
10.0					18		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.8 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:22

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-79			
				LOCATION: Lat. 48.15535363; Long. -102.612519 See Sketch.			
DRILLER: L. Smilie		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.4	BIT	5 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (6")			17	LL=44, PL=15, PI=29, P200=71.0%	
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-7-6 (19) MDD = 121.0 pcf; OMC = 13.0%.			18		
4.0					26		
	CL	LEAN CLAY with SAND, trace Organics, black to brown, moist. A-7-6 (16) MDD = 112.0 pcf; OMC = 16.0%.			33	LL=43, PL=20, PI=23, P200=74.0%	
					38		
					30		
					24		
					19		
10.0					17		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 4 feet and 4 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:22

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:22

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-80 LOCATION: Lat. 48.15809364; Long. -102.6125194 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.5	BIT	6 inches of Bituminous Pavement.					
0.8	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (4")			14	LL=49, PL=17, PI=32, P200=74.7%	
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-7-6 (23) MDD = 122.0 pcf; OMC = 13.0%.			20		
					24		
					19		
					20		
					18		
					20		
10.0		END OF BORING.			20		
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.8 to 10 feet.					
		Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-81			
				LOCATION: Lat. 48.16083295; Long. -102.6125219 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (4")			17	LL=43, PL=18, PI=25, P200=67.8%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (15) MDD = 121.0 pcf; OMC = 12.0%.			19		
					20		
					19		
					19		
					25		
					19		
					22		
10.0					19		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:22

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:22

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-82 LOCATION: Lat. 48.16357242; Long. -102.6125196 See Sketch.			
DRILLER: L. Smilie		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.4	BIT	5 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (7")			20	LL=48, PL=18, PI=30, P200=72.0%	
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-7-6 (20) MDD = 123.0 pcf; OMC = 12.0%.			24		
					18		
					19		
					19		
7.0	SC	CLAYEY SAND with GRAVEL, brown, moist.			18		
					19		
					10		
10.0					13		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 7 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:22

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-83 LOCATION: Lat. 48.16631148; Long. -102.6125209 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (5")			18	LL=47, PL=17, PI=30, P200=70.2%	
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-7-6 (19) MDD = 122.0 pcf; OMC = 12.0%.			20		
					25		
					23		
					22		
					21		
					23		
					17		
10.0					23		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:22

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-84 LOCATION: Lat. 48.16905171; Long. -102.6125212 See Sketch.			
DRILLER: L. Smilie		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.5	BIT	6 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (5")			14	LL=45, PL=16, PI=29, P200=78.0%	
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-7-6 (22) MDD = 122.0 pcf; OMC = 11.0%.			18		
					19		
					21		
					21		
7.0	CL	LEAN CLAY, with Organics and roots, trace Gravel and Sand, black, moist.			22		
					18		
10.0					18		
END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 0.9 to 7 feet. Boring then backfilled.							

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-85			
				LOCATION: Lat. 48.17179121; Long. -102.612525 See Sketch.			
DRILLER: L. Smilie		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.4	BIT	5 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (6")			14	LL=44, PL=16, PI=28, P200=70.7%	
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-7-6 (18) MDD = 123.0 pcf; OMC = 12.0%.			18		
					19		
					21		
					21		
					22		
		-trace roots at 7 feet.			22		
					18		
10.0					18		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:22

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:22

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-86 LOCATION: Lat. 48.1745316; Long. -102.6125252 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
1.0	FILL CL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (5") SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (15) MDD = 123.0 pcf; OMC = 12.0%.			17	LL=41, PL=14, PI=27, P200=66.1%	
					18		
					19		
					20		
					19		
					21		
					19		
					21		
					18		
10.0		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 1 to 10 feet. Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:23

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-87 LOCATION: Lat. 48.17727002; Long. -102.6125256 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.6	BIT	7 inches of Bituminous Pavement.					
1.0	FILL CL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (5") SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (19) MDD = 125.0 pcf; OMC = 11.0%.			17	LL=47, PL=15, PI=32, P200=68.5%	
					21		
					19		
					20		
					18		
					18		
					18		
					19		
					17		
10.0		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 1 to 10 feet. Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:23

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-88 LOCATION: Lat. 48.18000986; Long. -102.6125226 See Sketch.			
DRILLER: L. Smilie		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.4	BIT	5 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (6")			17	LL=36, PL=13, PI=23, P200=67.8%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (13) MDD = 127.0 pcf; OMC = 11.0%.			18		
					17		
					17		
					17		
					16		
					16		
10.0					16		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-89			
				LOCATION: Lat. 48.18274943; Long. -102.6125293 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.5	BIT	6 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (5")			21	LL=44, PL=16, PI=28, P200=75.6%	
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-7-6 (20) MDD = 122.0 pcf; OMC = 11.0%.			21		
					22		
					20		
					22		
					23		
					23		
					24		
10.0					24		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:23

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:23

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-90 LOCATION: Lat. 48.18548906; Long. -102.6125279 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.1	FILL CL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (5") SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (14) MDD = 119.0 pcf; OMC = 10.0%.			14	LL=40, PL=15, PI=25, P200=65.5%	
					19		
					19		
					16		
					22		
					22		
					21		
					19		
10.0					20		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:23

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-91 LOCATION: Lat. 48.18822826; Long. -102.6125315 See Sketch.			
DRILLER: L. Smilie		METHOD: Power Auger		DATE: 12/18/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.4	BIT	5 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (6")			11	LL=39, PL=14, PI=25, P200=59.4%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (11) MDD = 124.0 pcf; OMC = 11.0%.			18		
					14		
4.0	SC	CLAYEY SAND with GRAVEL, brown, moist. A-6 (6) MDD = 133.0 pcf; OMC = 9.0%.			15	LL=34, PL=14, PI=20, P200=49.2%	
					9		
					12		
					14		
					14		
10.0					13		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 4 feet and 4 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:23

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-92 LOCATION: Lat. 48.19096777; Long. -102.6125316 See Sketch.			
DRILLER: L. Smilie		METHOD: Power Auger		DATE: 12/19/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.5	BIT	6 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (6")			19	LL=40, PL=16, PI=24, P200=63.8%	
	CL	SANDY LEAN CLAY, trace Gravel, brown, moist. A-6 (13) MDD = 125.0 pcf; OMC = 12.0%.			19		
					25		
					19		
					19		
					20		
					22		
					18		
10.0		-trace roots and Organics at 9 feet.			24		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:23

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-93 LOCATION: Lat. 48.19370653; Long. -102.6125317 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/19/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL CL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (4") SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (15) MDD = 125.0 pcf; OMC = 11.0%.			14	LL=41, PL=15, PI=26, P200=66.7%	
					16		
					16		
					16		
					16		
					16		
					16		
10.0		END OF BORING. Water not observed immediately after withdrawal of auger. Bag sample collected from 1 to 10 feet. Boring then backfilled.					

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-94			
				LOCATION: Lat. 48.1964467; Long. -102.6125343 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/19/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (4")			14		
2.0	CL	SANDY LEAN CLAY, trace Gravel, brown, moist.			5	LL=27, PL=14, PI=13, P200=38.6%	
	SC	CLAYEY SAND, a little Gravel, brown, damp to moist.			4		
4.0		A-6 (1) MDD = 138.0 pcf; OMC = 7.0%.			15	LL=37, PL=16, PI=21, P200=81.6%	
	CL	LEAN CLAY with SAND, brown, moist.			17		
		A-6 (16) MDD = 123.0 pcf; OMC = 12.0%.			17		
					19		
		-wet below 8 feet.			27		
10.0					26		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 2 to 4 feet and 4 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:23

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-95 LOCATION: Lat. 48.19918752; Long. -102.6125311 See Sketch.			
DRILLER: L. Smilie		METHOD: Power Auger		DATE: 12/19/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.5	BIT	6 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (6")			18	LL=41, PL=16, PI=25, P200=68.6%	
	CL	SANDY LEAN CLAY, brown trace black, moist. A-7-6 (15) MDD = 124.0 pcf; OMC = 12.0%.			18		
		- trace Roots and Organics.			22		
					25		
					21		
					18		
					16		
					18		
10.0		END OF BORING.			17		
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:23

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-96			
				LOCATION: Lat. 48.2019275; Long. -102.6125279 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/19/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.5	BIT	6 inches of Bituminous Pavement.					
0.9	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (5")			13	LL=41, PL=15, PI=26, P200=69.8%	
	CL	SANDY LEAN CLAY, brown, moist. A-7-6 (16) MDD = 124.0 pcf; OMC = 11.0%.			15		
		-wet at 4 feet.			17		
					24		
					21		
					19		
					18		
					17		
10.0					19		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 0.9 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:24

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-97			
				LOCATION: Lat. 48.20466683; Long. -102.6125228 See Sketch.			
DRILLER: L. Smilie		METHOD: Power Auger		DATE: 12/19/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.5	BIT	6 inches of Bituminous Pavement.					
1.0	FILL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (6")			14	LL=42, PL=15, PI=27, P200=70.9%	
	CL	LEAN CLAY with SAND, trace Gravel, brown, moist. A-7-6 (17) MDD = 122.0 pcf; OMC = 13.0%.			16		
					16		
					17		
					16		
					19		
					19		
					17		
10.0					19		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:24

Braun Project BM-13-05525 Geotechnical Evaluation Highway 1804 Reconstruction Highway 1804 New Town, North Dakota				BORING: LSS-98 LOCATION: Lat. 48.20589975; Long. -102.6125193 See Sketch.			
DRILLER: J. Logan		METHOD: Power Auger		DATE: 12/19/13		SCALE: 1" = 4'	
Depth feet	ASTM Symbol	Description of Materials (ASTM D2488 or D2487)	BPF	WL	MC %	Tests or Notes	
0.0							
0.7	BIT	8 inches of Bituminous Pavement.					
1.1	FILL CL	FILL: Poorly Graded Sand with Silt and Gravel, brown, moist. (5") SANDY LEAN CLAY, trace Gravel, brown, moist. A-7-6 (15) MDD = 120.0 pcf; OMC = 12.0%.			17	LL=42, PL=17, PI=25, P200=68.8%	
					19		
					19		
					27		
					26		
					25		
					19		
					19		
10.0					20		
		END OF BORING.					
		Water not observed immediately after withdrawal of auger.					
		Bag sample collected from 1.1 to 10 feet.					
		Boring then backfilled.					

(See Descriptive Terminology sheet for explanation of abbreviations)

NDDOT LOG 05525.GPJ BRAUN.GDT 6/12/14 12:24

Appendix C:
Linear Soils Report

Linear Report of Tests on Soil Samples

PROJECT NO.: BM-13-05525

PROJECT: Highway 1804 Reconstruction

ND Highway 1804

North of New Town, North Dakota

Braun Intertec Corporation

PO Box 485, West Fargo, ND

Phone: (701) 232-8701



Boring Number		LSS-01		LSS-02		LSS-03		LSS-03A		LSS-04	
Latitude		48.000816		48.003244		48.005936		48.007230		48.008675	
Longitude		-102.500179		-102.502069		-102.502854		-102.502934		-102.502957	
Sample Depth		1 - 10		1 - 10		0.9 - 7		1.3 - 10		1.2 - 10	
% Passing 3/8" Sieve		99		97		100		99		99	
% Passing No. 4 Sieve		96		93		97		98		99	
% Passing No. 10 Sieve		91		86		96		93		95	
% Coarse Sand (-No. 10, +No. 40)		11		46		2		7		6	
% Fine Sand (-No. 40, +No. 200)		19		27		2		16		8	
% Silt (0.075 - 0.002 mm)		39		10		62		43		55	
% Clay (<0.002 mm)		22		3		31		28		27	
% Finer than 0.02 mm		42		8		65		52		55	
Frost Group		F3		F2		F3		F3		F3	
Liquid Limit (-No. 40)		35		NP		51		46		47	
Plastic Limit (-No. 40)		16		NP		17		16		17	
Plasticity Index (-No. 40)		19		NP		34		30		30	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		CL		SM		CH		CL		CL	
Soil Classification (AASHTO M-15)		A-6 (9)		A-1-b (0)		A-7-6 (34)		A-7-6 (19)		A-7-6 (24)	
Optimum Moisture (%)		12.0		8.0		13.0		11.0		13.0	
Maximum Dry Density (pcf)		121.0		134.0		122.0		125.0		120.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	1.0	17	1.0	6	0.9	25	1.3	28	1.2	26
		2.0	19	2.0	3	2.0	24	2.0	23	2.0	25
		3.0	16	3.0	2	3.0	24	3.0	18	3.0	24
		4.0	10	4.0	3	4.0	24	4.0	19	4.0	24
		5.0	22	5.0	3	5.0	24	5.0	18	5.0	24
		6.0	22	6.0	3	6.0	26	6.0	18	6.0	25
		7.0	19	7.0	3	7.0	28	7.0	24	7.0	27
		8.0	19	8.0	3	8.0	33	8.0	28	8.0	33
Avg. Moisture of Sample Depth (all)		18		3		27		23		26	

Linear Report of Tests on Soil Samples

PROJECT NO.: BM-13-05525

PROJECT: Highway 1804 Reconstruction

ND Highway 1804

North of New Town, North Dakota

Braun Intertec Corporation

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Phone: (701) 232-8701



Boring Number		LSS-04A		LSS-05		LSS-05A		LSS-06		LSS-06A	
Latitude		48.010048		48.011413		48.012793		48.014096		48.015180	
Longitude		-102.503030		-102.503062		-102.503192		-102.503848		-102.505080	
Sample Depth		1.2 - 10		1.1 - 10		1.1 - 10		1.1 - 10		1.1 - 10	
% Passing 3/8" Sieve		100		99		100		98		100	
% Passing No. 4 Sieve		99		98		97		96		100	
% Passing No. 10 Sieve		98		94		92		93		96	
% Coarse Sand (-No. 10, +No. 40)		1		3		4		4		2	
% Fine Sand (-No. 40, +No. 200)		2		11		12		11		8	
% Silt (0.075 - 0.002 mm)		51		49		48		47		49	
% Clay (<0.002 mm)		44		32		28		32		37	
% Finer than 0.02 mm		88		58		54		56		64	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		88		53		46		47		51	
Plastic Limit (-No. 40)		21		18		17		18		20	
Plasticity Index (-No. 40)		67		35		29		29		31	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		CH		CH		CL		CL		CH	
Soil Classification (AASHTO M-15)		A-7-6 (72)		A-7-6 (29)		A-7-6 (21)		A-7-6 (23)		A-7-6 (28)	
Optimum Moisture (%)		17.0		13.0		12.0		12.0		16.0	
Maximum Dry Density (pcf)		112.0		115.0		118.0		118.0		113.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	1.2	32	1.1	29	1.1	25	1.1	23	1.1	22
		2.0	35	2.0	29	2.0	23	2.0	28	2.0	25
		3.0	36	3.0	27	3.0	20	3.0	23	3.0	22
		4.0	29	4.0	19	4.0	23	4.0	23	4.0	23
		5.0	28	5.0	26	5.0	27	5.0	21	5.0	22
		6.0	25	6.0	27	6.0	22	6.0	19	6.0	23
		7.0	26	7.0	27	7.0	17	7.0	21	7.0	23
		8.0	32	8.0	26	8.0	19	8.0	19	8.0	23
Avg. Moisture of Sample Depth (all)		31		26		22		22		23	

Linear Report of Tests on Soil Samples

PROJECT NO.: BM-13-05525

PROJECT: Highway 1804 Reconstruction

ND Highway 1804

North of New Town, North Dakota

Braun Intertec Corporation

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Phone: (701) 232-8701



Boring Number		LSS-07		LSS-07A		LSS-08		LSS-08A		LSS-09	
Latitude		48.016196		48.016846		48.017365		48.017872		48.018515	
Longitude		-102.506459		-102.508283		-102.510153		-102.512067		-102.513869	
Sample Depth		1.2 - 10		1.3 - 10		1.2 - 10		1.2 - 10		1.1 - 9	
% Passing 3/8" Sieve		98		99		100		98		100	
% Passing No. 4 Sieve		97		97		100		95		100	
% Passing No. 10 Sieve		92		94		100		84		97	
% Coarse Sand (-No. 10, +No. 40)		8		5		1		5		3	
% Fine Sand (-No. 40, +No. 200)		16		16		2		7		19	
% Silt (0.075 - 0.002 mm)		40		42		49		44		49	
% Clay (<0.002 mm)		28		32		49		28		26	
% Finer than 0.02 mm		50		58		89		56		48	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		42		51		62		49		38	
Plastic Limit (-No. 40)		17		18		18		17		16	
Plasticity Index (-No. 40)		25		33		44		32		22	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		CL		CH		CH		CL		CL	
Soil Classification (AASHTO M-15)		A-7-6 (15)		A-7-6 (24)		A-7-6 (47)		A-7-6 (22)		A-6 (15)	
Optimum Moisture (%)		9.0		14.0		12.0		13.0		13.0	
Maximum Dry Density (pcf)		127.0		116.0		118.0		117.0		114.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	1.2	21	1.3	24	1.2	26	1.2	28	1.1	33
		2.0	21	2.0	27	2.0	24	2.0	23	2.0	36
		3.0	19	3.0	23	3.0	25	3.0	27	3.0	28
		4.0	20	4.0	30	4.0	26	4.0	31	4.0	32
		5.0	18	5.0	29	5.0	23	5.0	29	5.0	27
		6.0	16	6.0	23	6.0	25	6.0	27	6.0	32
		7.0	17	7.0	22	7.0	27	7.0	28	7.0	32
		8.0	19	8.0	28	8.0	25	8.0	31	8.0	30
Avg. Moisture of Sample Depth (all)		19		25		26		28		31	

Linear Report of Tests on Soil Samples

PROJECT NO.: BM-13-05525

PROJECT: Highway 1804 Reconstruction

ND Highway 1804

North of New Town, North Dakota

Braun Intertec Corporation

PO Box 485, West Fargo, ND

Phone: (701) 232-8701



Boring Number		LSS-09A		LSS-10		LSS-10A		LSS-11		LSS-11A	
Latitude		48.019513		48.020844		48.022228		48.023581		48.024940	
Longitude		-102.515272		-102.516042		-102.516134		-102.515814		-102.515554	
Sample Depth		1.3 - 10		1.2 - 10		1.1 - 8		1 - 10		1 - 10	
% Passing 3/8" Sieve		99		100		99		100		100	
% Passing No. 4 Sieve		98		98		98		100		98	
% Passing No. 10 Sieve		92		97		98		100		97	
% Coarse Sand (-No. 10, +No. 40)		2		3		2		1		7	
% Fine Sand (-No. 40, +No. 200)		16		14		27		7		27	
% Silt (0.075 - 0.002 mm)		47		50		51		75		44	
% Clay (<0.002 mm)		26		30		18		18		20	
% Finer than 0.02 mm		49		60		40		46		42	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		38		40		30		33		35	
Plastic Limit (-No. 40)		17		17		16		21		16	
Plasticity Index (-No. 40)		21		23		14		12		19	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		CL		CL		CL		CL		CL	
Soil Classification (AASHTO M-15)		A-6 (14)		A-6 (18)		A-6 (7)		A-6 (11)		A-6 (9)	
Optimum Moisture (%)		12.0		13.0		12.0		12.0		11.0	
Maximum Dry Density (pcf)		119.0		121.0		124.0		122.0		126.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	1.3	23	1.2	24	1.1	28	1.0	14	1.0	14
		2.0	19	2.0	13	2.0	16	2.0	15	2.0	23
		3.0	26	3.0	21	3.0	19	3.0	15	3.0	17
		4.0	24	4.0	18	4.0	23	4.0	16	4.0	13
		5.0	23	5.0	27	5.0	18	5.0	14	5.0	24
		6.0	27	6.0	18	6.0	18	6.0	12	6.0	22
		7.0	28	7.0	20	7.0	19	7.0	14	7.0	20
		8.0	28	8.0	20			8.0	16	8.0	19
Avg. Moisture of Sample Depth (all)		25		20		20		15		19	

Linear Report of Tests on Soil Samples

PROJECT NO.: BM-13-05525

PROJECT: Highway 1804 Reconstruction

ND Highway 1804

North of New Town, North Dakota

Braun Intertec Corporation

PO Box 485, West Fargo, ND

Phone: (701) 232-8701

BRAUN
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Boring Number		LSS-12		LSS-12A		LSS-13		LSS-13A		LSS-14	
Latitude		48.026295		48.027682		48.029019		48.030202		48.031341	
Longitude		-102.515266		-102.515184		-102.515596		-102.516515		-102.517755	
Sample Depth		1 - 10		1 - 10		1.1 - 10		0.9 - 10		0.9 - 10	
% Passing 3/8" Sieve		100		99		98		98		98	
% Passing No. 4 Sieve		100		98		97		96		95	
% Passing No. 10 Sieve		99		97		96		92		88	
% Coarse Sand (-No. 10, +No. 40)		3		4		6		4		5	
% Fine Sand (-No. 40, +No. 200)		10		26		30		13		16	
% Silt (0.075 - 0.002 mm)		51		43		39		44		38	
% Clay (<0.002 mm)		35		24		22		31		30	
% Finer than 0.02 mm		61		46		40		61		54	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		46		34		34		44		42	
Plastic Limit (-No. 40)		18		15		15		18		16	
Plasticity Index (-No. 40)		28		19		19		26		26	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		CL		CL		CL		CL		CL	
Soil Classification (AASHTO M-15)		A-7-6 (25)		A-6 (10)		A-6 (9)		A-7-6 (18)		A-7-6 (15)	
Optimum Moisture (%)		12.0		12.0		12.0		13.0		14.0	
Maximum Dry Density (pcf)		119.0		125.0		123.0		120.0		121.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	1.0	24	1.0	14	1.1	15	0.9	22	0.9	16
		2.0	25	2.0	15	2.0	14	2.0	22	2.0	20
		3.0	25	3.0	15	3.0	19	3.0	21	3.0	26
		4.0	25	4.0	14	4.0	18	4.0	21	4.0	24
		5.0	22	5.0	13	5.0	17	5.0	18	5.0	21
		6.0	23	6.0	15	6.0	14	6.0	19	6.0	19
		7.0	22	7.0	13	7.0	14	7.0	23	7.0	17
		8.0	20	8.0	19	8.0	15	8.0	19	8.0	27
Avg. Moisture of Sample Depth (all)		23		15		16		21		21	

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Boring Number		LSS-14A		LSS-15		LSS-15A		LSS-16		LSS-16A	
Latitude		48.032422		48.033531		48.034454		48.035003		48.035062	
Longitude		-102.519000		-102.520210		-102.521704		-102.523638		-102.525691	
Sample Depth		0.9 - 10		0.9 - 10		1 - 10		0.9 - 8		1 - 10	
% Passing 3/8" Sieve		98		97		97		95		95	
% Passing No. 4 Sieve		94		95		90		89		91	
% Passing No. 10 Sieve		88		90		78		77		82	
% Coarse Sand (-No. 10, +No. 40)		6		7		11		14		11	
% Fine Sand (-No. 40, +No. 200)		22		20		21		24		33	
% Silt (0.075 - 0.002 mm)		38		38		33		26		28	
% Clay (<0.002 mm)		23		25		13		13		11	
% Finer than 0.02 mm		42		46		26		25		22	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		37		40		30		30		26	
Plastic Limit (-No. 40)		15		15		16		14		15	
Plasticity Index (-No. 40)		22		25		14		16		11	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		CL		CL		SC		SC		SC	
Soil Classification (AASHTO M-15)		A-6 (10)		A-6 (13)		A-6 (3)		A-6 (2)		A-6 (1)	
Optimum Moisture (%)		11.0		12.0		9.0		8.0		9.0	
Maximum Dry Density (pcf)		127.0		121.0		131.0		135.0		134.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	0.9	17	0.9	17	1.0	15	0.9	17	1.0	12
		2.0	16	2.0	18	2.0	11	2.0	19	2.0	17
		3.0	17	3.0	17	3.0	13	3.0	22	3.0	18
		4.0	18	4.0	17	4.0	14	4.0	20	4.0	20
		5.0	18	5.0	17	5.0	13	5.0	15	5.0	12
		6.0	15	6.0	19	6.0	14	6.0	12	6.0	12
		7.0	17	7.0	18	7.0	9	7.0	12	7.0	13
		8.0	13	8.0	18	8.0	10	8.0	8	8.0	11
Avg. Moisture of Sample Depth (all)		17		18		13		16		14	

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Boring Number		LSS-17		LSS-18		LSS-19		LSS-20		LSS-21	
Latitude		48.034723		48.033673		48.031882		48.030120		48.028849	
Longitude		-102.527694		-102.531455		-102.534547		-102.537681		-102.541302	
Sample Depth		1 - 10		0.9 - 10		0.9 - 10		1 - 6		1.6 - 6	
% Passing 3/8" Sieve		98		89		100		99		99	
% Passing No. 4 Sieve		95		87		98		96		99	
% Passing No. 10 Sieve		84		79		92		89		95	
% Coarse Sand (-No. 10, +No. 40)		10		8		10		7		3	
% Fine Sand (-No. 40, +No. 200)		20		20		30		8		5	
% Silt (0.075 - 0.002 mm)		36		35		36		44		57	
% Clay (<0.002 mm)		18		16		16		32		30	
% Finer than 0.02 mm		33		30		32		68		65	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		37		38		31		35		40	
Plastic Limit (-No. 40)		15		14		15		18		21	
Plasticity Index (-No. 40)		22		24		16		17		19	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		CL		CL		CL		CL		CL	
Soil Classification (AASHTO M-15)		A-6 (8)		A-6 (8)		A-6 (5)		A-6 (11)		A-6 (17)	
Optimum Moisture (%)		10.0		9.0		10.0		12.0		13.0	
Maximum Dry Density (pcf)		123.0		130.0		127.0		123.0		119.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	1.0	21	0.9	19	0.9	13	1.0	26	2.0	24
		2.0	19	2.0	16	2.0	10	2.0	25	3.0	24
		3.0	19	3.0	18	3.0	13	3.0	27	4.0	19
		4.0	17	4.0	14	4.0	18	4.0	21	5.0	24
		5.0	16	5.0	12	5.0	14	5.0	24		
		6.0	16	6.0	11	6.0	13				
		7.0	18	7.0	9	7.0	10				
		8.0	19	8.0	12	8.0	13				
Avg. Moisture of Sample Depth (all)		18		14		13		25		23	

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Boring Number		LSS-22		LSS-23		LSS-24		LSS-25		LSS-26	
Latitude		48.027708		48.027157		48.026739		48.026319		48.025919	
Longitude		-102.545019		-102.549023		-102.553061		-102.557099		-102.561142	
Sample Depth		1.1 - 10		1 - 10		0.9 - 10		0.9 - 10		0.9 - 10	
% Passing 3/8" Sieve		99		98		100		98		99	
% Passing No. 4 Sieve		95		93		99		96		98	
% Passing No. 10 Sieve		87		82		93		90		93	
% Coarse Sand (-No. 10, +No. 40)		8		9		8		8		7	
% Fine Sand (-No. 40, +No. 200)		21		18		20		19		19	
% Silt (0.075 - 0.002 mm)		36		37		42		48		41	
% Clay (<0.002 mm)		23		18		24		16		26	
% Finer than 0.02 mm		41		36		43		46		46	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		37		34		38		38		39	
Plastic Limit (-No. 40)		13		15		14		16		15	
Plasticity Index (-No. 40)		24		19		24		22		24	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		CL		CL		CL		CL		CL	
Soil Classification (AASHTO M-15)		A-6 (11)		A-6 (7)		A-6 (13)		A-6 (11)		A-6 (14)	
Optimum Moisture (%)		10.0		10.0		11.0		11.0		11.0	
Maximum Dry Density (pcf)		129.0		130.0		126.0		125.0		125.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	1.1	17	1.0	15	0.9	18	0.9	25	0.9	19
		2.0	16	2.0	20	2.0	18	2.0	22	2.0	20
		3.0	16	3.0	17	3.0	17	3.0	19	3.0	20
		4.0	16	4.0	21	4.0	17	4.0	17	4.0	19
		5.0	16	5.0	8	5.0	15	5.0	17	5.0	16
		6.0	15	6.0	10	6.0	15	6.0	15	6.0	17
		7.0	17	7.0	14	7.0	16	7.0	15	7.0	17
		8.0	18	8.0	15	8.0	16	8.0	16	8.0	16
Avg. Moisture of Sample Depth (all)		16		15		16		18		18	

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Boring Number		LSS-27		LSS-28		LSS-29		LSS-30		LSS-31	
Latitude		48.025872		48.026175		48.027522		48.029803		48.032184	
Longitude		-102.565228		-102.569294		-102.572860		-102.575132		-102.577151	
Sample Depth		0.9 - 10		0.9 - 10		0.9 - 10		0.9 - 10		0.9 - 4	
% Passing 3/8" Sieve		97		97		100		100		99	
% Passing No. 4 Sieve		95		96		97		99		96	
% Passing No. 10 Sieve		91		91		92		96		89	
% Coarse Sand (-No. 10, +No. 40)		4		6		7		4		14	
% Fine Sand (-No. 40, +No. 200)		13		15		15		11		13	
% Silt (0.075 - 0.002 mm)		50		43		43		60		44	
% Clay (<0.002 mm)		25		27		28		20		18	
% Finer than 0.02 mm		45		48		51		41		33	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		38		39		40		39		35	
Plastic Limit (-No. 40)		16		15		16		20		18	
Plasticity Index (-No. 40)		22		24		24		19		17	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		CL		CL		CL		CL		CL	
Soil Classification (AASHTO M-15)		A-6 (15)		A-6 (15)		A-6 (15)		A-6 (15)		A-6 (8)	
Optimum Moisture (%)		11.0		11.0		13.0		13.0		10.0	
Maximum Dry Density (pcf)		119.0		125.0		122.0		116.0		127.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	0.9	17	0.9	24	0.9	24	0.9	13	0.9	20
		2.0	20	2.0	20	2.0	16	2.0	28	2.0	30
		3.0	20	3.0	18	3.0	14	3.0	32	3.0	16
		4.0	26	4.0	19	4.0	19	4.0	27		
		5.0	18	5.0	18	5.0	18	5.0	22		
		6.0	24	6.0	22	6.0	18	6.0	24		
		7.0	24	7.0	21	7.0	19	7.0	19		
		8.0	23	8.0	22	8.0	19	8.0	19		
Avg. Moisture of Sample Depth (all)		22		21		19		22		22	

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Boring Number		LSS-31		LSS-32		LSS-33		LSS-34		LSS-35	
Latitude		48.032184		48.034589		48.037063		48.039204		48.041259	
Longitude		-102.577151		-102.579116		-102.580862		-102.583408		-102.586109	
Sample Depth		4 - 10		0.9 - 7		1.0 - 10		0.9 - 10		0.9 - 10	
% Passing 3/8" Sieve		86		98		99		100		99	
% Passing No. 4 Sieve		71		96		97		99		98	
% Passing No. 10 Sieve		56		90		93		94		95	
% Coarse Sand (-No. 10, +No. 40)		23		10		9		7		6	
% Fine Sand (-No. 40, +No. 200)		11		16		21		18		20	
% Silt (0.075 - 0.002 mm)		17		44		39		46		45	
% Clay (<0.002 mm)		5		21		24		24		24	
% Finer than 0.02 mm		13		40		44		43		41	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		25		36		37		39		39	
Plastic Limit (-No. 40)		16		16		14		17		15	
Plasticity Index (-No. 40)		9		20		23		22		24	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		SC		CL		CL		CL		CL	
Soil Classification (AASHTO M-15)		A-2-4 (0)		A-6 (10)		A-6 (11)		A-6 (13)		A-6 (14)	
Optimum Moisture (%)		7.0		10.0		10.0		11.0		11.0	
Maximum Dry Density (pcf)		141.0		128.0		127.0		125.0		125.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	4.0	11	0.9	16	1.0	14	0.9	19	0.9	21
		5.0	4	2.0	19	2.0	15	2.0	20	2.0	21
		6.0	3	3.0	19	3.0	16	3.0	19	3.0	21
		7.0	3	4.0	19	4.0	14	4.0	20	4.0	20
		8.0	5	5.0	17	5.0	14	5.0	20	5.0	19
		9.0	5	6.0	15	6.0	17	6.0	20	6.0	16
						7.0	18	7.0	20	7.0	16
						8.0	15	8.0	16	8.0	15
Avg. Moisture of Sample Depth (all)		5		18		15		19		18	

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Boring Number		LSS-36		LSS-37		LSS-38		LSS-39		LSS-40	
Latitude		48.043333		48.045889		48.048583		48.050864		48.052272	
Longitude		-102.588783		-102.590266		-102.590985		-102.593233		-102.596736	
Sample Depth		0.9 - 10		1 - 10		0.9 - 10		0.9 - 10		0.9 - 10	
% Passing 3/8" Sieve		99		99		99		99		97	
% Passing No. 4 Sieve		97		97		95		96		96	
% Passing No. 10 Sieve		94		92		89		90		90	
% Coarse Sand (-No. 10, +No. 40)		4		7		8		8		8	
% Fine Sand (-No. 40, +No. 200)		15		19		20		19		20	
% Silt (0.075 - 0.002 mm)		53		41		38		40		39	
% Clay (<0.002 mm)		22		26		24		25		24	
% Finer than 0.02 mm		43		47		43		43		43	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		40		42		38		41		38	
Plastic Limit (-No. 40)		17		15		15		16		14	
Plasticity Index (-No. 40)		23		27		23		25		24	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		CL		CL		CL		CL		CL	
Soil Classification (AASHTO M-15)		A-6 (16)		A-7-6 (15)		A-6 (11)		A-7-6 (13)		A-6 (12)	
Optimum Moisture (%)		12.0		11.0		11.0		12.0		11.0	
Maximum Dry Density (pcf)		122.0		126.0		126.0		123.0		128.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	0.9	25	1.0	17	0.9	16	0.9	20	0.9	16
		2.0	29	2.0	19	2.0	17	2.0	19	2.0	16
		3.0	28	3.0	18	3.0	20	3.0	19	3.0	15
		4.0	27	4.0	19	4.0	19	4.0	19	4.0	15
		5.0	26	5.0	17	5.0	20	5.0	18	5.0	14
		6.0	25	6.0	15	6.0	18	6.0	18	6.0	14
		7.0	22	7.0	16	7.0	17	7.0	15	7.0	14
		8.0	23	8.0	16	8.0	18	8.0	19	8.0	15
Avg. Moisture of Sample Depth (all)		26		17		18		18		15	

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Boring Number		LSS-41		LSS-42		LSS-43		LSS-44		LSS-45	
Latitude		48.053706		48.055502		48.057312		48.059677		48.062376	
Longitude		-102.600222		-102.603308		-102.606376		-102.608454		-102.609149	
Sample Depth		0.9 - 10		0.9 - 10		0.9 - 10		1 - 10		1 - 10	
% Passing 3/8" Sieve		98		100		98		98		95	
% Passing No. 4 Sieve		95		99		96		96		93	
% Passing No. 10 Sieve		90		97		90		90		88	
% Coarse Sand (-No. 10, +No. 40)		8		4		8		7		8	
% Fine Sand (-No. 40, +No. 200)		20		19		21		18		18	
% Silt (0.075 - 0.002 mm)		42		48		40		39		38	
% Clay (<0.002 mm)		20		26		21		26		25	
% Finer than 0.02 mm		36		46		38		47		45	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		37		40		37		43		40	
Plastic Limit (-No. 40)		16		17		16		16		15	
Plasticity Index (-No. 40)		21		23		21		27		25	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		CL		CL		CL		CL		CL	
Soil Classification (AASHTO M-15)		A-6 (10)		A-6 (15)		A-6 (10)		A-7-6 (15)		A-6 (13)	
Optimum Moisture (%)		12.0		12.0		11.0		12.0		10.0	
Maximum Dry Density (pcf)		123.0		123.0		125.0		123.0		129.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	0.9	21	0.9	21	0.9	13	1.0	21	1.0	22
		2.0	21	2.0	21	2.0	26	2.0	25	2.0	22
		3.0	20	3.0	27	3.0	18	3.0	22	3.0	19
		4.0	20	4.0	23	4.0	23	4.0	19	4.0	19
		5.0	16	5.0	22	5.0	19	5.0	18	5.0	25
		6.0	15	6.0	22	6.0	19	6.0	17	6.0	21
		7.0	17	7.0	21	7.0	18	7.0	17	7.0	19
		8.0	13	8.0	20	8.0	18	8.0	18	8.0	16
Avg. Moisture of Sample Depth (all)		17		22		19		19		20	

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Boring Number		LSS-46		LSS-47		LSS-48		LSS-49		LSS-50	
Latitude		48.065079		48.067783		48.070487		48.073191		48.075900	
Longitude		-102.609796		-102.610446		-102.611095		-102.611740		-102.612361	
Sample Depth		1 - 10		1.1 - 8		0.9 - 10		1 - 10		1 - 10	
% Passing 3/8" Sieve		100		98		99		97		99	
% Passing No. 4 Sieve		98		95		97		95		96	
% Passing No. 10 Sieve		93		91		92		91		92	
% Coarse Sand (-No. 10, +No. 40)		8		8		6		7		7	
% Fine Sand (-No. 40, +No. 200)		18		16		17		18		18	
% Silt (0.075 - 0.002 mm)		42		43		43		40		40	
% Clay (<0.002 mm)		25		25		26		26		28	
% Finer than 0.02 mm		46		45		47		47		49	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		38		41		42		43		42	
Plastic Limit (-No. 40)		15		16		16		15		14	
Plasticity Index (-No. 40)		23		25		26		28		28	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		CL		CL		CL		CL		CL	
Soil Classification (AASHTO M-15)		A-6 (13)		A-7-6 (14)		A-7-6 (16)		A-7-6 (16)		A-7-6 (16)	
Optimum Moisture (%)		12.0		12.0		13.0		12.0		12.0	
Maximum Dry Density (pcf)		124.0		122.0		120.0		122.0		123.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	1.0	25	1.1	19	0.9	23	1.0	20	1.0	19
		2.0	18	2.0	19	2.0	22	2.0	17	2.0	19
		3.0	16	3.0	18	3.0	22	3.0	18	3.0	17
		4.0	18	4.0	22	4.0	19	4.0	17	4.0	19
		5.0	17	5.0	18	5.0	18	5.0	19	5.0	19
		6.0	20	6.0	19	6.0	21	6.0	20	6.0	20
		7.0	18	7.0	18	7.0	20	7.0	19	7.0	22
		8.0	17			8.0	20	8.0	18	8.0	20
Avg. Moisture of Sample Depth (all)		18		19		20		18		19	

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Phone: (701) 232-8701

Boring Number		LSS-51		LSS-52		LSS-53		LSS-54		LSS-55	
Latitude		48.078639		48.081379		48.084119		48.086858		48.089597	
Longitude		-102.612493		-102.612491		-102.612493		-102.612492		-102.612495	
Sample Depth		1.1 - 10		1.2 - 10		1 - 6		1 - 10		1 - 10	
% Passing 3/8" Sieve		96		97		95		97		98	
% Passing No. 4 Sieve		89		94		88		93		97	
% Passing No. 10 Sieve		79		87		79		85		92	
% Coarse Sand (-No. 10, +No. 40)		13		13		14		10		11	
% Fine Sand (-No. 40, +No. 200)		17		18		17		17		20	
% Silt (0.075 - 0.002 mm)		31		37		29		34		35	
% Clay (<0.002 mm)		18		20		18		24		27	
% Finer than 0.02 mm		33		37		32		42		45	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		38		39		36		40		39	
Plastic Limit (-No. 40)		17		16		15		15		14	
Plasticity Index (-No. 40)		21		23		21		25		25	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		SC		CL		SC		CL		CL	
Soil Classification (AASHTO M-15)		A-6 (6)		A-6 (10)		A-6 (6)		A-6 (11)		A-6 (12)	
Optimum Moisture (%)		11.0		11.0		10.0		11.0		11.0	
Maximum Dry Density (pcf)		127.0		123.0		128.0		124.0		121.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	1.1	19	1.2	20	1.0	11	1.0	22	1.0	16
		2.0	22	2.0	27	2.0	12	2.0	25	2.0	16
		3.0	21	3.0	17	3.0	13	3.0	18	3.0	17
		4.0	23	4.0	17	4.0	14	4.0	14	4.0	17
		5.0	24	5.0	14	5.0	13	5.0	17	5.0	19
		6.0	16	6.0	16			6.0	17	6.0	20
		7.0	15	7.0	17			7.0	16	7.0	21
		8.0	9	8.0	18			8.0	18	8.0	20
Avg. Moisture of Sample Depth (all)		18		19		13		18		18	

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Boring Number		LSS-56		LSS-57		LSS-58		LSS-59		LSS-60	
Latitude		48.092337		48.095076		48.097816		48.100555		48.103295	
Longitude		-102.612496		-102.612495		-102.612502		-102.612504		-102.612503	
Sample Depth		1 - 10		0.9 - 6		0.9 - 10		1.1 - 10		1 - 10	
% Passing 3/8" Sieve		95		99		100		100		98	
% Passing No. 4 Sieve		91		96		97		95		95	
% Passing No. 10 Sieve		86		90		91		89		89	
% Coarse Sand (-No. 10, +No. 40)		11		9		8		8		9	
% Fine Sand (-No. 40, +No. 200)		18		22		20		19		18	
% Silt (0.075 - 0.002 mm)		34		36		36		38		38	
% Clay (<0.002 mm)		22		24		27		24		24	
% Finer than 0.02 mm		38		41		46		44		44	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		38		37		40		39		38	
Plastic Limit (-No. 40)		16		14		15		16		14	
Plasticity Index (-No. 40)		22		23		25		23		24	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		CL		CL		CL		CL		CL	
Soil Classification (AASHTO M-15)		A-6 (9)		A-6 (10)		A-6 (13)		A-6 (11)		A-6 (12)	
Optimum Moisture (%)		13.0		11.0		11.0		12.0		12.0	
Maximum Dry Density (pcf)		121.0		120.0		122.0		120.0		124.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	1.0	23	0.9	20	0.9	16	1.1	16	1.0	17
		2.0	18	2.0	19	2.0	17	2.0	22	2.0	19
		3.0	15	3.0	12	3.0	18	3.0	23	3.0	16
		4.0	18	4.0	16	4.0	20	4.0	22	4.0	19
		5.0	16	5.0	18	5.0	16	5.0	18	5.0	18
		6.0	17			6.0	16	6.0	16	6.0	17
		7.0	17			7.0	16	7.0	18	7.0	18
		8.0	20			8.0	15	8.0	17	8.0	20
Avg. Moisture of Sample Depth (all)		18		17		17		19		18	

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Boring Number		LSS-61		LSS-62		LSS-63		LSS-64		LSS-65	
Latitude		48.106034		48.108774		48.111515		48.114255		48.116995	
Longitude		-102.612507		-102.612513		-102.612512		-102.612509		-102.612512	
Sample Depth		1.1 - 10		1 - 10		1 - 10		1 - 10		1 - 10	
% Passing 3/8" Sieve		96		97		96		98		97	
% Passing No. 4 Sieve		92		95		94		97		96	
% Passing No. 10 Sieve		86		91		88		94		87	
% Coarse Sand (-No. 10, +No. 40)		9		11		19		10		8	
% Fine Sand (-No. 40, +No. 200)		19		20		15		19		17	
% Silt (0.075 - 0.002 mm)		36		38		32		39		37	
% Clay (<0.002 mm)		23		23		22		26		25	
% Finer than 0.02 mm		41		42		39		46		46	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		38		41		43		39		39	
Plastic Limit (-No. 40)		14		18		17		15		16	
Plasticity Index (-No. 40)		24		23		26		24		23	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		CL		CL		CL		CL		CL	
Soil Classification (AASHTO M-15)		A-6 (10)		A-7-6 (11)		A-7-6 (10)		A-6 (13)		A-6 (11)	
Optimum Moisture (%)		13.0		12.0		12.0		12.0		13.0	
Maximum Dry Density (pcf)		120.0		124.0		121.0		124.0		119.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	1.1	18	1.0	17	1.0	25	1.0	15	1.0	19
		2.0	17	2.0	18	2.0	25	2.0	17	2.0	25
		3.0	18	3.0	15	3.0	23	3.0	18	3.0	24
		4.0	19	4.0	15	4.0	16	4.0	15	4.0	20
		5.0	14	5.0	19	5.0	12	5.0	15	5.0	24
		6.0	19	6.0	16	6.0	18	6.0	15	6.0	21
		7.0	22	7.0	17	7.0	18	7.0	14	7.0	18
		8.0	23	8.0	16	8.0	20	8.0	20	8.0	20
Avg. Moisture of Sample Depth (all)		19		17		20		16		21	

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Boring Number		LSS-66		LSS-67		LSS-68		LSS-69		LSS-70	
Latitude		48.119734		48.122474		48.125214		48.127953		48.130693	
Longitude		-102.612399		-102.612484		-102.612515		-102.612530		-102.612530	
Sample Depth		1 - 10		0.8 - 10		1 - 10		1 - 10		0.9 - 6.5	
% Passing 3/8" Sieve		97		98		99		100		97	
% Passing No. 4 Sieve		96		96		97		100		96	
% Passing No. 10 Sieve		92		91		90		95		91	
% Coarse Sand (-No. 10, +No. 40)		9		8		8		11		8	
% Fine Sand (-No. 40, +No. 200)		20		18		20		19		16	
% Silt (0.075 - 0.002 mm)		33		37		34		36		42	
% Clay (<0.002 mm)		30		28		29		29		26	
% Finer than 0.02 mm		54		46		47		48		46	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		44		43		41		42		44	
Plastic Limit (-No. 40)		15		16		15		15		18	
Plasticity Index (-No. 40)		29		27		26		27		26	
Soil Color		Brown		Brown		Brown		Brown		Black to Dark Brown	
USCS Classification		CL		CL		CL		CL		CL	
Soil Classification (AASHTO M-15)		A-7-6 (16)		A-7-6 (15)		A-7-6 (13)		A-7-6 (15)		A-7-6 (16)	
Optimum Moisture (%)		12.0		13.0		12.0		11.0		15.0	
Maximum Dry Density (pcf)		121.0		123.0		123.0		121.0		113.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	1.0	15	0.8	23	1.0	21	1.0	18	0.9	34
		2.0	17	2.0	19	2.0	32	2.0	18	2.0	22
		3.0	12	3.0	22	3.0	19	3.0	18	3.0	18
		4.0	22	4.0	20	4.0	19	4.0	23	4.0	24
		5.0	11	5.0	17	5.0	16	5.0	20	5.0	22
		6.0	14	6.0	17	6.0	18	6.0	20	6.0	20
		7.0	13	7.0	16	7.0	18	7.0	19		
		8.0	19	8.0	16	8.0	18	8.0	19		
Avg. Moisture of Sample Depth (all)		16		18		20		19		23	

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Boring Number		LSS-70		LSS-71		LSS-71		LSS-72		LSS-73	
Latitude		48.130693		48.133433		48.133433		48.136173		48.138913	
Longitude		-102.612530		-102.612537		-102.612537		-102.612545		-102.612551	
Sample Depth		6.5 - 10		1 - 5		5 - 10		0.9 - 10		1 - 8	
% Passing 3/8" Sieve		98		95		91		97		97	
% Passing No. 4 Sieve		92		92		84		95		95	
% Passing No. 10 Sieve		88		88		75		87		90	
% Coarse Sand (-No. 10, +No. 40)		5		24		25		14		11	
% Fine Sand (-No. 40, +No. 200)		14		13		17		26		20	
% Silt (0.075 - 0.002 mm)		40		31		23		31		40	
% Clay (<0.002 mm)		30		20		10		16		19	
% Finer than 0.02 mm		51		36		23		33		41	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		50		42		28		34		37	
Plastic Limit (-No. 40)		16		16		12		17		15	
Plasticity Index (-No. 40)		34		26		16		17		22	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		CH		CL		SC		SC		CL	
Soil Classification (AASHTO M-15)		A-7-6 (22)		A-7-6 (9)		A-2-6 (1)		A-6 (5)		A-6 (10)	
Optimum Moisture (%)		12.0		10.0		6.0		9.0		11.0	
Maximum Dry Density (pcf)		122.0		128.0		140.0		118.0		124.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	7.0	18	1.0	20	5.0	5	0.9	17	1.0	11
		8.0	20	2.0	23	6.0	7	2.0	9	2.0	15
		9.0	19	3.0	22	7.0	10	3.0	10	3.0	19
				4.0	11	8.0	8	4.0	17	4.0	23
						9.0	9	5.0	24	5.0	22
								6.0	22	6.0	18
								7.0	17	7.0	19
								8.0	13		
Avg. Moisture of Sample Depth (all)		19		19		8		16		18	

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Boring Number		LSS-74		LSS-74		LSS-75		LSS-76		LSS-77	
Latitude		48.141654		48.141654		48.144393		48.147133		48.149873	
Longitude		-102.612546		-102.612546		-102.612540		-102.612538		-102.612531	
Sample Depth		1.2 - 6		6 - 10		1 - 10		0.9 - 10		1.1 - 10	
% Passing 3/8" Sieve		97		97		99		98		100	
% Passing No. 4 Sieve		95		95		99		96		99	
% Passing No. 10 Sieve		94		91		95		92		98	
% Coarse Sand (-No. 10, +No. 40)		10		10		9		9		4	
% Fine Sand (-No. 40, +No. 200)		27		20		20		22		15	
% Silt (0.075 - 0.002 mm)		33		40		37		37		44	
% Clay (<0.002 mm)		24		21		29		24		35	
% Finer than 0.02 mm		45		42		50		42		63	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		37		39		43		39		45	
Plastic Limit (-No. 40)		15		19		17		16		17	
Plasticity Index (-No. 40)		22		20		26		23		28	
Soil Color		Brown		Black		Brown		Brown		Brown	
USCS Classification		CL		CL		CL		CL		CL	
Soil Classification (AASHTO M-15)		A-6 (9)		A-6 (10)		A-7-6 (15)		A-6 (11)		A-7-6 (21)	
Optimum Moisture (%)		12.0		13.0		12.0		11.0		13.0	
Maximum Dry Density (pcf)		124.0		117.0		123.0		124.0		120.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	1.2	23	6.0	19	1.0	16	0.9	17	1.1	14
		2.0	21	7.0	24	2.0	19	2.0	19	2.0	22
		3.0	22	8.0	31	3.0	18	3.0	14	3.0	22
		4.0	18	9.0	24	4.0	19	4.0	18	4.0	17
		5.0	11			5.0	22	5.0	18	5.0	25
						6.0	21	6.0	24	6.0	20
						7.0	19	7.0	19	7.0	26
						8.0	19	8.0	18	8.0	27
Avg. Moisture of Sample Depth (all)		19		25		19		18		22	

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Boring Number		LSS-78		LSS-79		LSS-79		LSS-80		LSS-81	
Latitude		48.152614		48.155354		48.155354		48.158094		48.160833	
Longitude		-102.612520		-102.612519		-102.612519		-102.612519		-102.612522	
Sample Depth		0.8 - 10		0.9 - 4		4 - 10		0.8 - 10		0.9 - 10	
% Passing 3/8" Sieve		100		98		100		99		100	
% Passing No. 4 Sieve		100		97		100		98		100	
% Passing No. 10 Sieve		100		95		99		97		98	
% Coarse Sand (-No. 10, +No. 40)		8		6		7		3		7	
% Fine Sand (-No. 40, +No. 200)		16		18		18		19		23	
% Silt (0.075 - 0.002 mm)		42		40		49		36		39	
% Clay (<0.002 mm)		33		31		25		39		29	
% Finer than 0.02 mm		57		53		52		60		54	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		44		44		43		49		43	
Plastic Limit (-No. 40)		17		15		20		17		18	
Plasticity Index (-No. 40)		27		29		23		32		25	
Soil Color		Brown		Brown		Black to Brown		Brown		Brown	
USCS Classification		CL		CL		CL		CL		CL	
Soil Classification (AASHTO M-15)		A-7-6 (19)		A-7-6 (19)		A-7-6 (16)		A-7-6 (23)		A-7-6 (15)	
Optimum Moisture (%)		13.0		13.0		16.0		13.0		12.0	
Maximum Dry Density (pcf)		118.0		121.0		112.0		122.0		121.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	0.8	21	0.9	17	4.0	33	0.8	14	0.9	17
		2.0	25	2.0	18	5.0	38	2.0	20	2.0	19
		3.0	27	3.0	26	6.0	30	3.0	24	3.0	20
		4.0	26			7.0	24	4.0	19	4.0	19
		5.0	30			8.0	19	5.0	20	5.0	19
		6.0	24			9.0	17	6.0	18	6.0	25
		7.0	17					7.0	20	7.0	19
		8.0	20					8.0	20	8.0	22
Avg. Moisture of Sample Depth (all)		23		20		27		19		20	

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Boring Number		LSS-82		LSS-83		LSS-84		LSS-85		LSS-86	
Latitude		48.163572		48.166311		48.169052		48.171791		48.174532	
Longitude		-102.612520		-102.612521		-102.612521		-102.612525		-102.612525	
Sample Depth		1 - 7		1 - 10		0.9 - 7		0.9 - 10		1 - 10	
% Passing 3/8" Sieve		99		99		100		99		98	
% Passing No. 4 Sieve		96		96		100		95		97	
% Passing No. 10 Sieve		95		95		99		95		94	
% Coarse Sand (-No. 10, +No. 40)		5		4		3		5		8	
% Fine Sand (-No. 40, +No. 200)		18		20		18		19		20	
% Silt (0.075 - 0.002 mm)		36		37		45		42		36	
% Clay (<0.002 mm)		36		33		34		29		31	
% Finer than 0.02 mm		57		55		60		58		51	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		48		47		45		44		41	
Plastic Limit (-No. 40)		18		17		16		16		14	
Plasticity Index (-No. 40)		30		30		29		28		27	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		CL		CL		CL		CL		CL	
Soil Classification (AASHTO M-15)		A-7-6 (20)		A-7-6 (19)		A-7-6 (22)		A-7-6 (18)		A-7-6 (15)	
Optimum Moisture (%)		12.0		12.0		11.0		12.0		12.0	
Maximum Dry Density (pcf)		123.0		122.0		122.0		123.0		123.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	1.0	20	1.0	18	0.9	14	0.9	14	1.0	17
		2.0	24	2.0	20	2.0	18	2.0	18	2.0	18
		3.0	18	3.0	25	3.0	19	3.0	19	3.0	19
		4.0	19	4.0	23	4.0	21	4.0	21	4.0	20
		5.0	19	5.0	22	5.0	21	5.0	21	5.0	19
		6.0	18	6.0	21	6.0	22	6.0	22	6.0	21
				7.0	23			7.0	22	7.0	19
				8.0	17			8.0	18	8.0	21
Avg. Moisture of Sample Depth (all)		20		21		19		19		19	

Linear Report of Tests on Soil Samples

PROJECT NO.: BM-13-05525

PROJECT: Highway 1804 Reconstruction

ND Highway 1804

North of New Town, North Dakota

Braun Intertec Corporation

PO Box 485, West Fargo, ND

Phone: (701) 232-8701



Boring Number		LSS-87		LSS-88		LSS-89		LSS-90		LSS-91	
Latitude		48.177270		48.180010		48.182749		48.185489		48.188228	
Longitude		-102.612526		-102.612523		-102.612529		-102.612528		-102.612532	
Sample Depth		1 - 10		0.9 - 10		0.9 - 10		1.1 - 10		0.9 - 4	
% Passing 3/8" Sieve		100		99		100		100		100	
% Passing No. 4 Sieve		100		98		99		100		100	
% Passing No. 10 Sieve		99		97		97		96		96	
% Coarse Sand (-No. 10, +No. 40)		9		9		4		9		14	
% Fine Sand (-No. 40, +No. 200)		21		21		17		22		23	
% Silt (0.075 - 0.002 mm)		34		40		44		37		33	
% Clay (<0.002 mm)		35		28		31		29		27	
% Finer than 0.02 mm		59		51		54		47		43	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		47		36		44		40		39	
Plastic Limit (-No. 40)		15		13		16		15		14	
Plasticity Index (-No. 40)		32		23		28		25		25	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		CL		CL		CL		CL		CL	
Soil Classification (AASHTO M-15)		A-7-6 (19)		A-6 (13)		A-7-6 (20)		A-6 (14)		A-6 (11)	
Optimum Moisture (%)		11.0		11.0		11.0		10.0		11.0	
Maximum Dry Density (pcf)		125.0		127.0		122.0		119.0		124.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	1.0	17	0.9	17	0.9	21	1.1	14	0.9	11
		2.0	21	2.0	18	2.0	21	2.0	19	2.0	18
		3.0	19	3.0	17	3.0	22	3.0	19	3.0	14
		4.0	20	4.0	17	4.0	20	4.0	16		
		5.0	18	5.0	17	5.0	22	5.0	22		
		6.0	18	6.0	16	6.0	23	6.0	22		
		7.0	18	7.0	16	7.0	23	7.0	21		
		8.0	19	8.0	16	8.0	24	8.0	19		
Avg. Moisture of Sample Depth (all)		19		17		22		19		14	

Linear Report of Tests on Soil Samples

PROJECT NO.: BM-13-05525

PROJECT: Highway 1804 Reconstruction

ND Highway 1804

North of New Town, North Dakota

Braun Intertec Corporation

PO Box 485, West Fargo, ND

Phone: (701) 232-8701

BRAUN
INTERTEC

Boring Number		LSS-91		LSS-92		LSS-93		LSS-94		LSS-94	
Latitude		48.188228		48.190968		48.193707		48.196447		48.196447	
Longitude		-102.612532		-102.612532		-102.612532		-102.612534		-102.612534	
Sample Depth		4 - 10		1 - 10		1 - 10		2 - 4		4 - 10	
% Passing 3/8" Sieve		86		100		100		92		100	
% Passing No. 4 Sieve		82		98		100		85		100	
% Passing No. 10 Sieve		80		90		96		73		98	
% Coarse Sand (-No. 10, +No. 40)		12		8		9		18		3	
% Fine Sand (-No. 40, +No. 200)		19		19		20		17		14	
% Silt (0.075 - 0.002 mm)		30		39		37		26		54	
% Clay (<0.002 mm)		19		25		30		13		27	
% Finer than 0.02 mm		34		46		49		27		52	
Frost Group		F3		F3		F3		F3		F3	
Liquid Limit (-No. 40)		34		40		41		27		37	
Plastic Limit (-No. 40)		14		16		15		14		16	
Plasticity Index (-No. 40)		20		24		26		13		21	
Soil Color		Brown		Brown		Brown		Brown		Brown	
USCS Classification		SC		CL		CL		SC		CL	
Soil Classification (AASHTO M-15)		A-6 (6)		A-6 (13)		A-7-6 (15)		A-6 (1)		A-6 (16)	
Optimum Moisture (%)		9.0		12.0		11.0		7.0		12.0	
Maximum Dry Density (pcf)		133.0		125.0		125.0		138.0		123.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	4.0	15	1.0	19	1.0	14	1.0	14	4.0	15
		5.0	9	2.0	19	2.0	16	2.0	5	5.0	17
		6.0	12	3.0	25	3.0	17	3.0	4	6.0	17
		7.0	14	4.0	19	4.0	20			7.0	19
		8.0	14	5.0	19	5.0	18			8.0	27
		9.0	13	6.0	20	6.0	16			9.0	26
				7.0	22	7.0	16				
				8.0	18	8.0	16				
Avg. Moisture of Sample Depth (all)		13		21		17		8		20	

Linear Report of Tests on Soil Samples

PROJECT NO.: BM-13-05525

PROJECT: Highway 1804 Reconstruction

ND Highway 1804

North of New Town, North Dakota

Braun Intertec Corporation

PO Box 485, West Fargo, ND

Phone: (701) 232-8701

BRAUN
INTERTEC

Boring Number		LSS-95		LSS-96		LSS-97		LSS-98	
Latitude		48.199188		48.201928		48.204667		48.205900	
Longitude		-102.612531		-102.612528		-102.612523		-102.612519	
Sample Depth		1 - 10		0.9 - 10		1 - 10		1.1 - 10	
% Passing 3/8" Sieve		100		100		100		100	
% Passing No. 4 Sieve		100		100		98		100	
% Passing No. 10 Sieve		97		98		98		97	
% Coarse Sand (-No. 10, +No. 40)		10		7		4		8	
% Fine Sand (-No. 40, +No. 200)		19		21		23		21	
% Silt (0.075 - 0.002 mm)		41		37		41		42	
% Clay (<0.002 mm)		28		33		30		27	
% Finer than 0.02 mm		51		53		54		48	
Frost Group		F3		F3		F3		F3	
Liquid Limit (-No. 40)		41		41		42		42	
Plastic Limit (-No. 40)		16		15		15		17	
Plasticity Index (-No. 40)		25		26		27		25	
Soil Color		Brown trace Black		Brown		Brown		Brown	
USCS Classification		CL		CL		CL		CL	
Soil Classification (AASHTO M-15)		A-7-6 (15)		A-7-6 (16)		A-7-6 (17)		A-7-6 (15)	
Optimum Moisture (%)		12.0		11.0		13.0		12.0	
Maximum Dry Density (pcf)		124.0		124.0		122.0		120.0	
Depth (ft) (top 8 samples)	Moisture (%) (top 8 samples)	1.0	18	0.9	13	1.0	14	1.1	17
		2.0	18	2.0	15	2.0	16	2.0	19
		3.0	22	3.0	17	3.0	16	3.0	19
		4.0	25	4.0	24	4.0	17	4.0	27
		5.0	21	5.0	21	5.0	16	5.0	26
		6.0	18	6.0	19	6.0	19	6.0	25
		7.0	16	7.0	18	7.0	19	7.0	19
		8.0	18	8.0	17	8.0	17	8.0	19
Avg. Moisture of Sample Depth (all)		19		18		17		21	

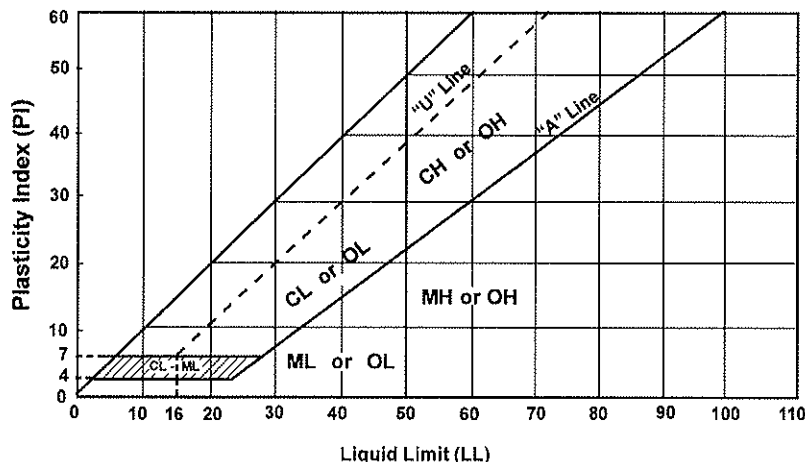
Appendix D:

Descriptive Terminology



Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^a					Soils Classification	
					Group Symbol	Group Name ^b
Coarse-grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels 5% or less fines ^c	$C_u \geq 4$ and $1 \leq C_c \leq 3$ ^c	GW	Well-graded gravel ^d	
			$C_u < 4$ and/or $1 > C_c > 3$ ^c	GP	Poorly graded gravel ^d	
		Gravels with Fines More than 12% fines ^a	Fines classify as ML or MH	GM	Silty gravel ^{d,f,g}	
			Fines classify as CL or CH	GC	Clayey gravel ^{d,f,g}	
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands 5% or less fines ⁱ	$C_u \geq 6$ and $1 \leq C_c \leq 3$ ^c	SW	Well-graded sand ^h	
			$C_u < 6$ and/or $1 > C_c > 3$ ^c	SP	Poorly graded sand ^h	
		Sands with Fines More than 12% ⁱ	Fines classify as ML or MH	SM	Silty sand ^{f,g,h}	
			Fines classify as CL or CH	SC	Clayey sand ^{f,g,h}	
Fine-grained Soils 50% or more passed the No. 200 sieve	Silts and Clays Liquid limit less than 50	Inorganic	PI > 7 and plots on or above "A" line ^j	CL	Lean clay ^{k,l,m}	
			PI < 4 or plots below "A" line ^j	ML	Silt ^{k,l,m}	
		Organic	Liquid limit - oven dried	OL	Organic clay ^{k,l,m,n}	
			Liquid limit - not dried < 0.75	OL	Organic silt ^{k,l,m,o}	
	Silts and clays Liquid limit 50 or more	Inorganic	PI plots on or above "A" line	CH	Fat clay ^{k,l,m}	
			PI plots below "A" line	MH	Elastic silt ^{k,l,m}	
		Organic	Liquid limit - oven dried	OH	Organic clay ^{k,l,m,p}	
			Liquid limit - not dried < 0.75	OH	Organic silt ^{k,l,m,q}	
Highly Organic Soils		Primarily organic matter, dark in color and organic odor			PT	Peat

- a. Based on the material passing the 3-in (75mm) sieve.
b. If field sample contained cobbles or boulders, or both, add "with cobbles or boulders or both" to group name.
c. $C_u = D_{60} / D_{10}$ $C_c = (D_{30})^2 / (D_{10} \times D_{60})$
d. If soil contains $\geq 15\%$ sand, add "with sand" to group name.
e. Gravels with 5 to 12% fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay
f. If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.
g. If fines are organic, add "with organic fines" to group name.
h. If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.
i. Sands with 5 to 12% fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay
j. If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.
k. If soil contains 10 to 29% plus No. 200, add "with sand" or "with gravel" whichever is predominant.
l. If soil contains $\geq 30\%$ plus No. 200, predominantly sand, add "sandy" to group name.
m. If soil contains $\geq 30\%$ plus No. 200 predominantly gravel, add "gravelly" to group name.
n. PI ≥ 4 and plots on or above "A" line.
o. PI < 4 or plots below "A" line.
p. PI plots on or above "A" line.
q. PI plots below "A" line.



Laboratory Tests

DD	Dry density, pcf	OC	Organic content, %
WD	Wet density, pcf	S	Percent of saturation, %
MC	Natural moisture content, %	SG	Specific gravity
LL	Liquid limit, %	C	Cohesion, psf
PL	Plastic limit, %	ϕ	Angle of internal friction
PI	Plasticity index, %	qu	Unconfined compressive strength, psf
P200	% passing 200 sieve	qp	Pocket penetrometer strength, tsf

Particle Size Identification

Boulders	over 12"
Cobbles	3" to 12"
Gravel	
Coarse	3/4" to 3"
Fine	No. 4 to 3/4"
Sand	
Coarse	No. 4 to No. 10
Medium	No. 10 to No. 40
Fine	No. 40 to No. 200
Silt	< No. 200, PI < 4 or below "A" line
Clay	< No. 200, PI ≥ 4 and on or above "A" line

Relative Density of Cohesionless Soils

Very loose	0 to 4 BPF
Loose	5 to 10 BPF
Medium dense	11 to 30 BPF
Dense	31 to 50 BPF
Very dense	over 50 BPF

Consistency of Cohesive Soils

Very soft	0 to 1 BPF
Soft	2 to 3 BPF
Rather soft	4 to 5 BPF
Medium	6 to 8 BPF
Rather stiff	9 to 12 BPF
Stiff	13 to 16 BPF
Very stiff	17 to 30 BPF
Hard	over 30 BPF

Drilling Notes

Standard penetration test borings were advanced by 3 1/4" or 6 1/4" ID hollow-stem augers unless noted otherwise. Jetting water was used to clean out auger prior to sampling only where indicated on logs. Standard penetration test borings are designated by the prefix "ST" (Split Tube). All samples were taken with the standard 2" OD split-tube sampler, except where noted.

Power auger borings were advanced by 4" or 6" diameter continuous-flight, solid-stem augers. Soil classifications and strata depths were inferred from disturbed samples augered to the surface and are, therefore, somewhat approximate. Power auger borings are designated by the prefix "B."

Hand auger borings were advanced manually with a 1 1/2" or 3 1/4" diameter auger and were limited to the depth from which the auger could be manually withdrawn. Hand auger borings are indicated by the prefix "H."

BPF: Numbers indicate blows per foot recorded in standard penetration test, also known as "N" value. The sampler was set 6" into undisturbed soil below the hollow-stem auger. Driving resistances were then counted for second and third 6" increments and added to get BPF. Where they differed significantly, they are reported in the following form: 2/12 for the second and third 6" increments, respectively.

WH: WH indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

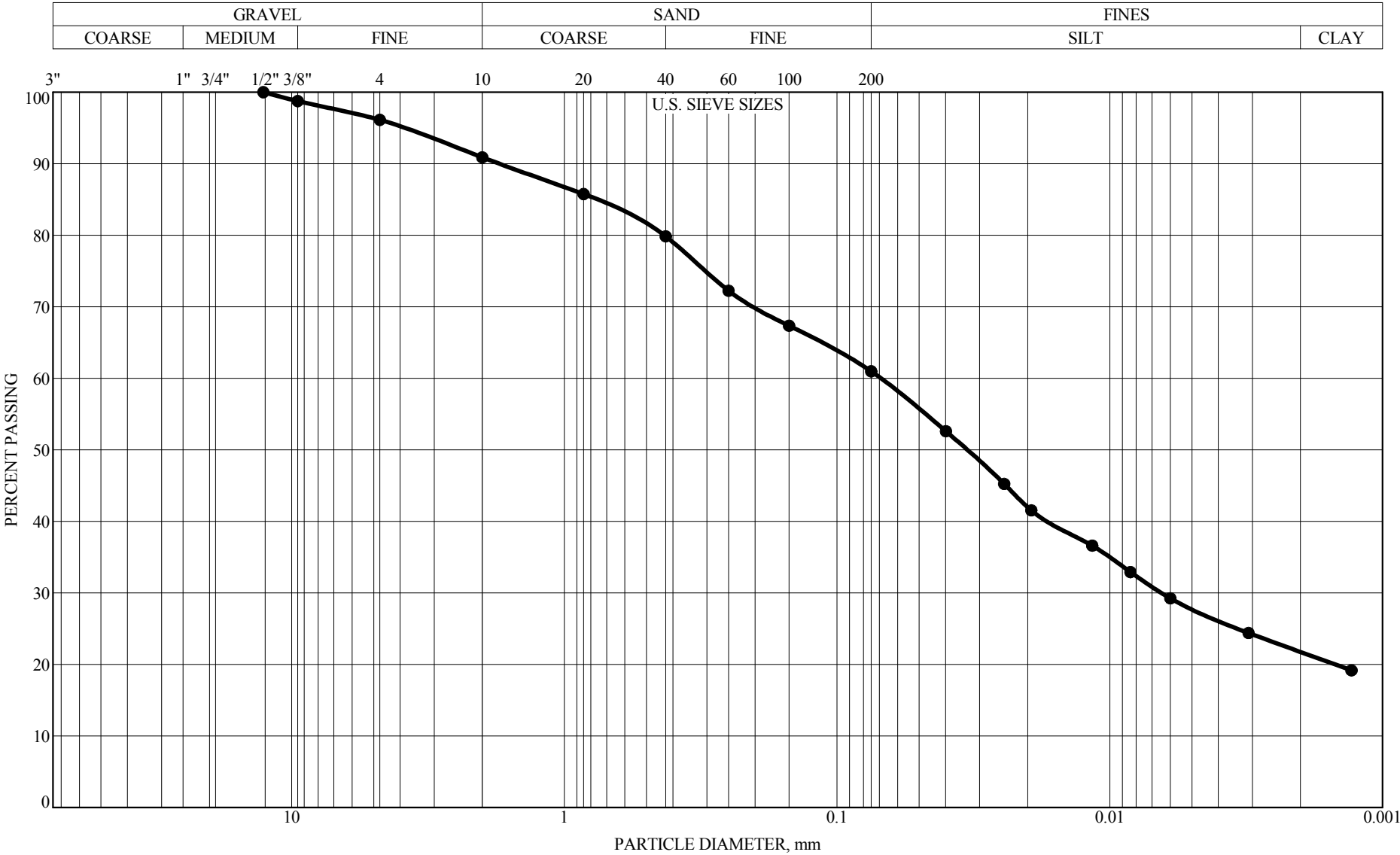
WR: WR indicates the sampler penetrated soil under weight of rods alone; hammer weight and driving not required.

TW indicates thin-walled (undisturbed) tube sample.

Note: All tests were run in general accordance with applicable ASTM standards.

Appendix E:
Grain Size Accumulation Curves

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



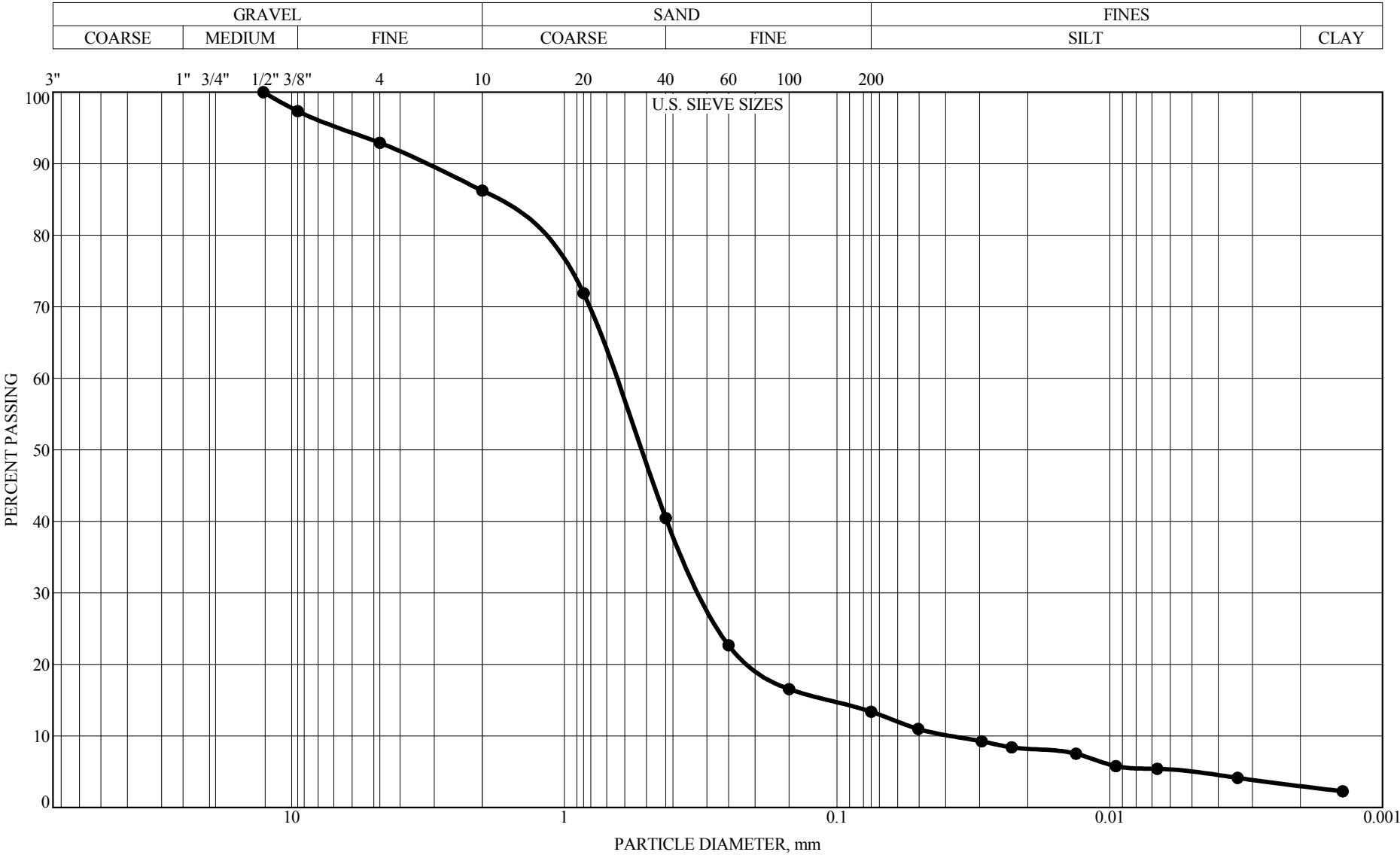
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-01 DEPTH: 1.0'-10.0'

GRAVEL 9.1%
SAND 29.9%
SILT 39.2%
CLAY 21.8%

CLASSIFICATION:
A-6 (9), brown
SANDY LEAN CLAY(CL)

LL=35, PL=16, PI=19, P200=61.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



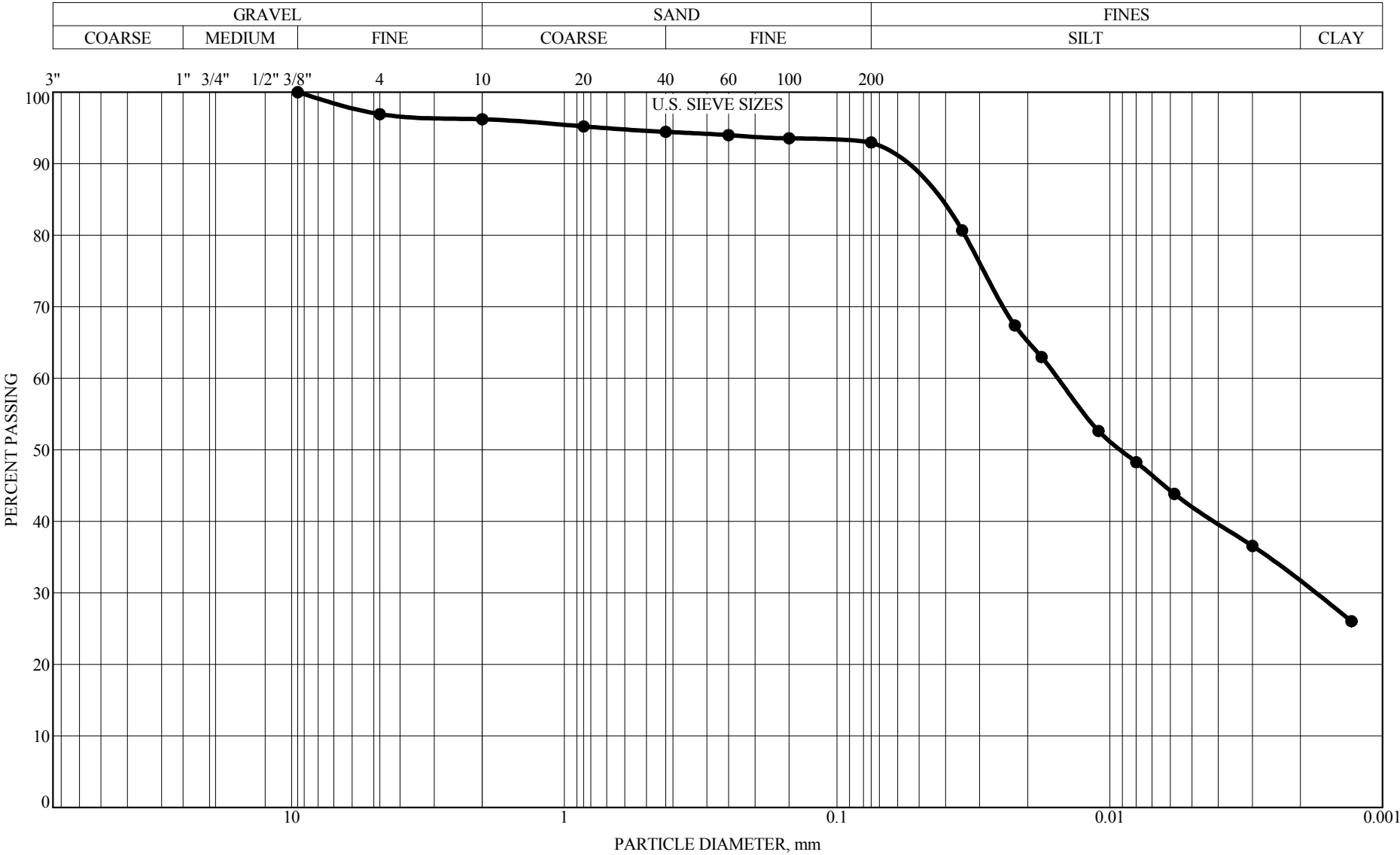
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-02 DEPTH: 1.0'-10.0'

GRAVEL 13.8%
SAND 72.9%
SILT 10.4%
CLAY 3.0%

CLASSIFICATION:
A-1-b (0), brown
SILTY SAND(SM)

LL=NP, PL=NP, PI=NP, P200=13.4%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



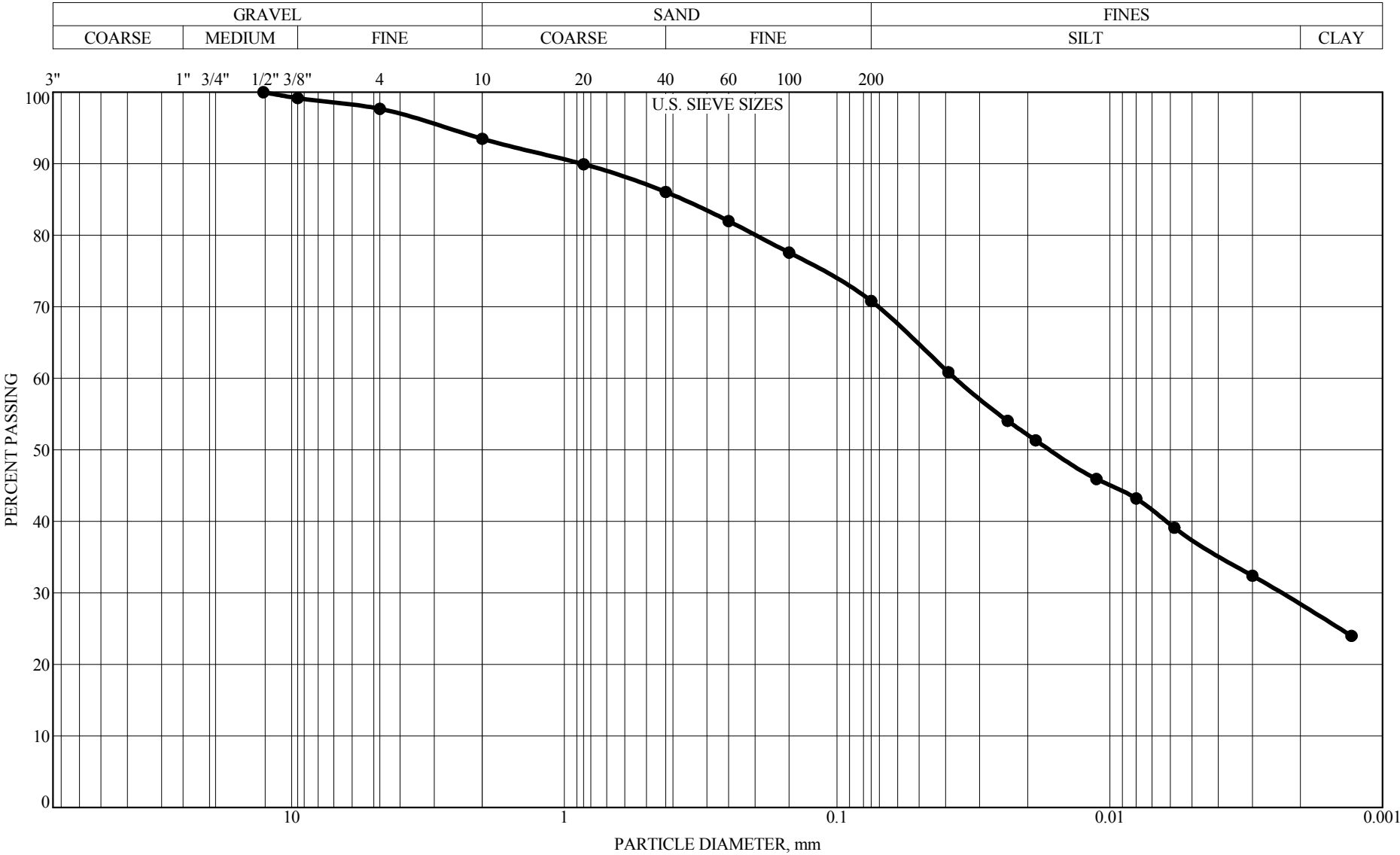
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-03 DEPTH: 0.9'-7.0'

GRAVEL 3.8%
SAND 3.2%
SILT 61.5%
CLAY 31.5%

CLASSIFICATION:
A-7-6 (34), brown
FAT CLAY(CH)

LL=51, PL=17, PI=34, P200=93.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



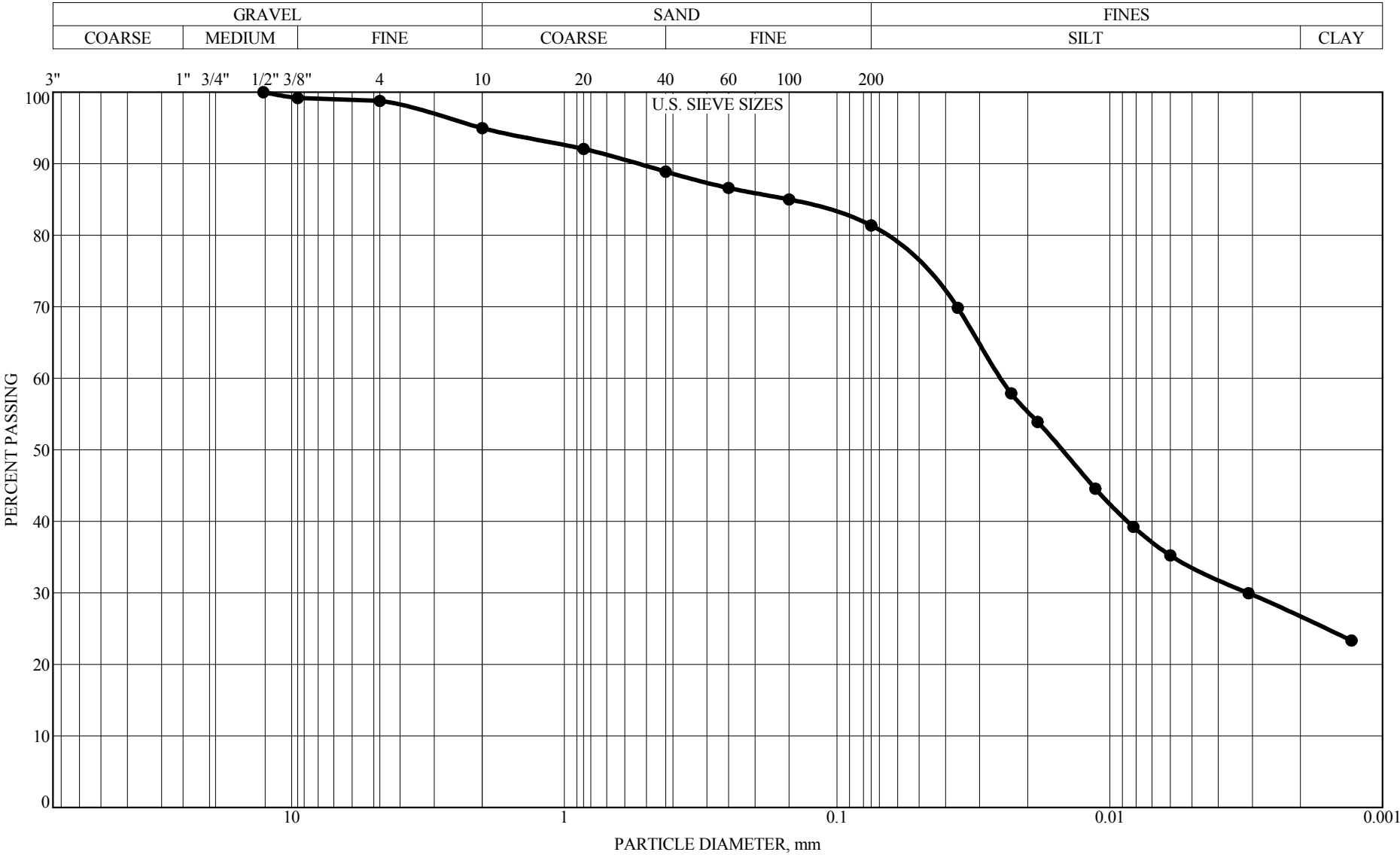
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-03A DEPTH: 1.3'-10.0'

GRAVEL 6.5%
SAND 22.7%
SILT 42.5%
CLAY 28.3%

CLASSIFICATION:
A-7-6 (19), brown
LEAN CLAY with SAND(CL)

LL=46, PL=16, PI=30, P200=70.8%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

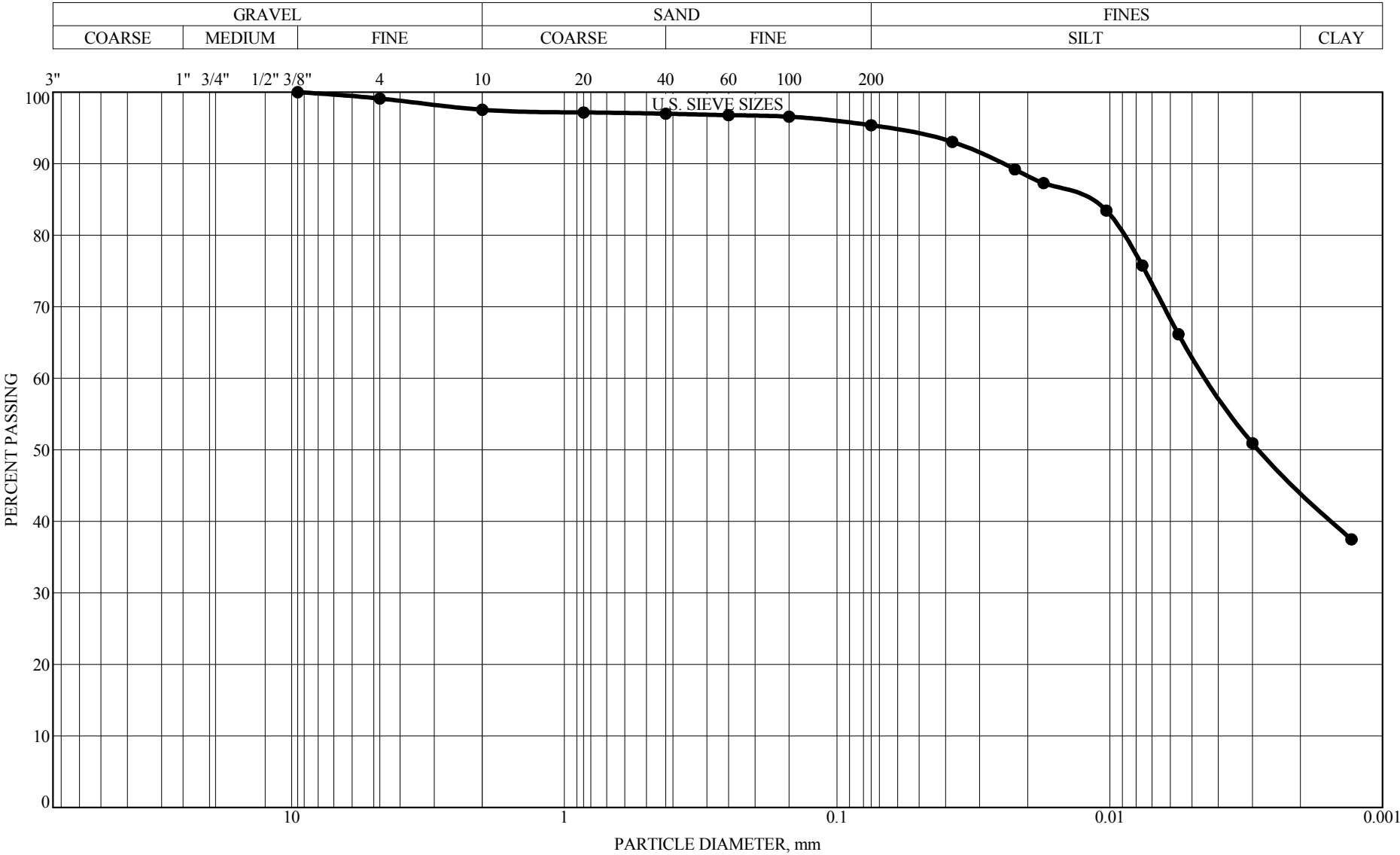


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-04 DEPTH: 1.2'-10.0'

GRAVEL 5.0%
SAND 13.6%
SILT 54.8%
CLAY 26.6%

CLASSIFICATION:
A-7-6 (24), brown
LEAN CLAY with SAND(CL)
LL=47, PL=17, PI=30, P200=81.4%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



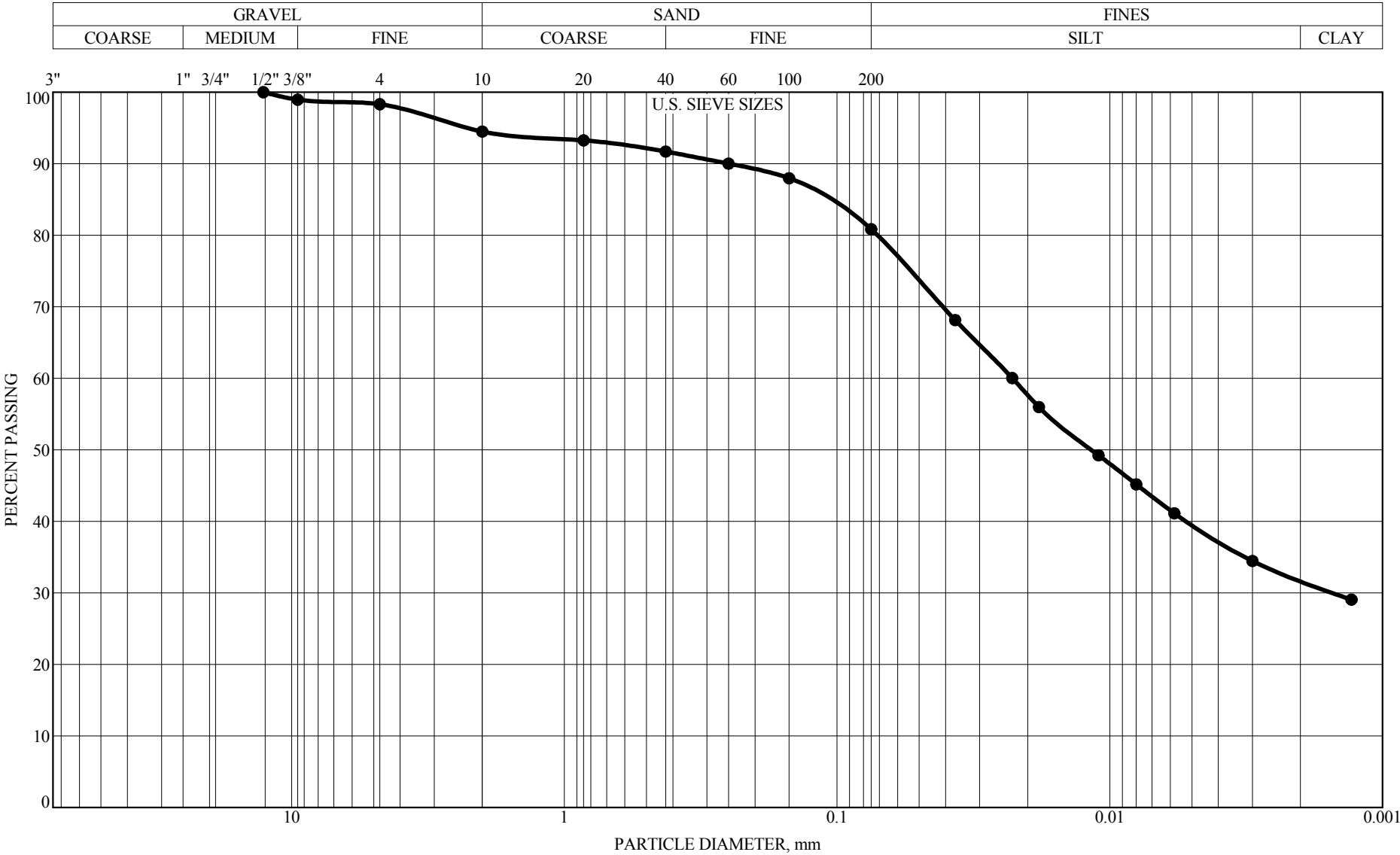
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-04A DEPTH: 1.2'-10.0'

GRAVEL 2.5%
SAND 2.2%
SILT 51.0%
CLAY 44.4%

CLASSIFICATION:
A-7-6 (72), brown
FAT CLAY(CH)

LL=88, PL=21, PI=67, P200=95.4%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

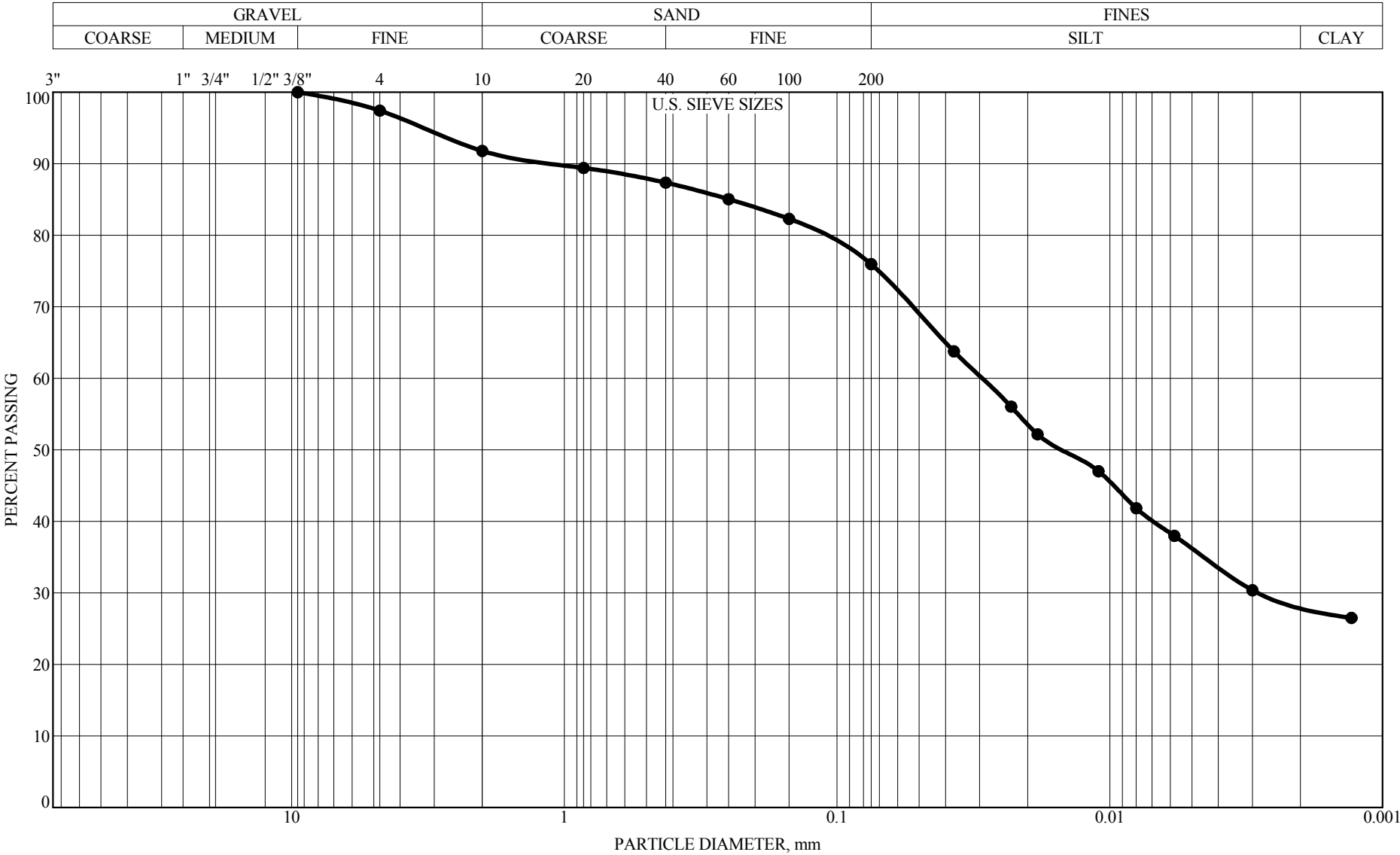


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-05 DEPTH: 1.1'-10.0'

GRAVEL 5.5%
SAND 13.6%
SILT 49.0%
CLAY 31.8%

CLASSIFICATION:
A-7-6 (29), brown
FAT CLAY with SAND(CH)
LL=53, PL=18, PI=35, P200=80.8%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



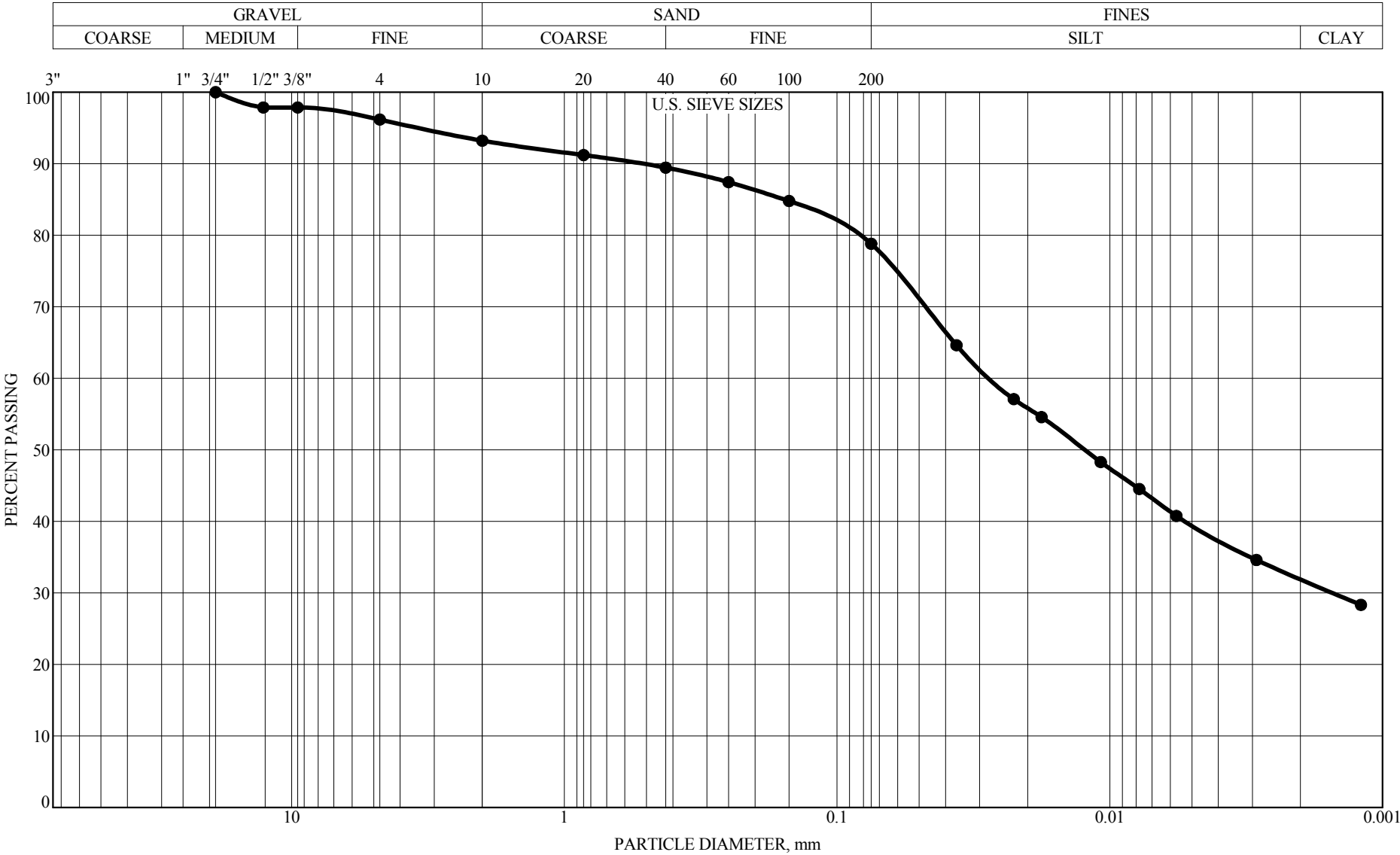
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-05A DEPTH: 1.1'-10.0'

GRAVEL 8.2%
SAND 15.8%
SILT 47.5%
CLAY 28.5%

CLASSIFICATION:
A-7-6 (21), brown
LEAN CLAY with SAND(CL)

LL=46, PL=17, PI=29, P200=76.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



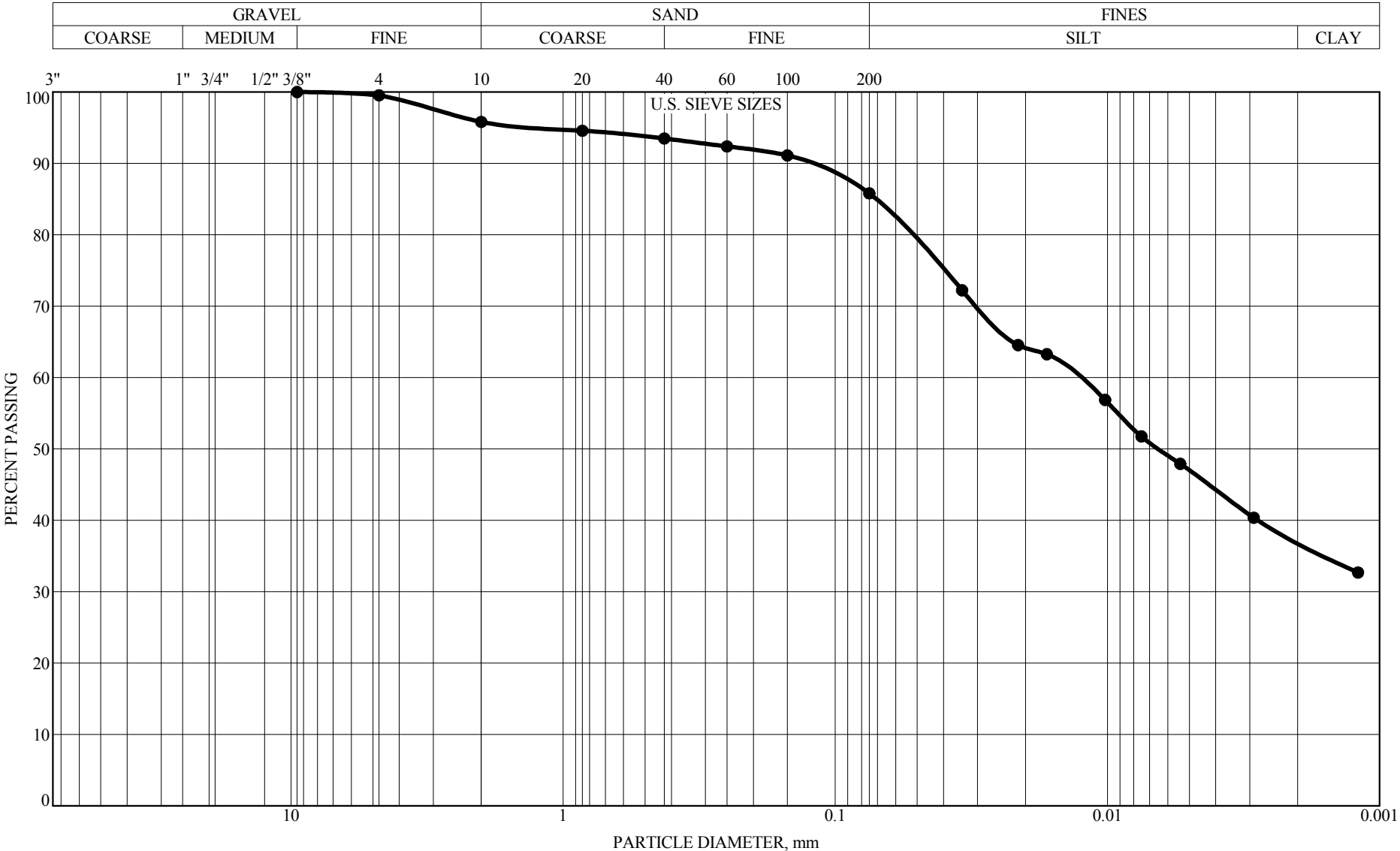
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-06 DEPTH: 1.1'-10.0'

GRAVEL 6.8%
SAND 14.4%
SILT 46.9%
CLAY 32.0%

CLASSIFICATION:
A-7-6 (23), brown
LEAN CLAY with SAND(CL)

LL=47, PL=18, PI=29, P200=78.9%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



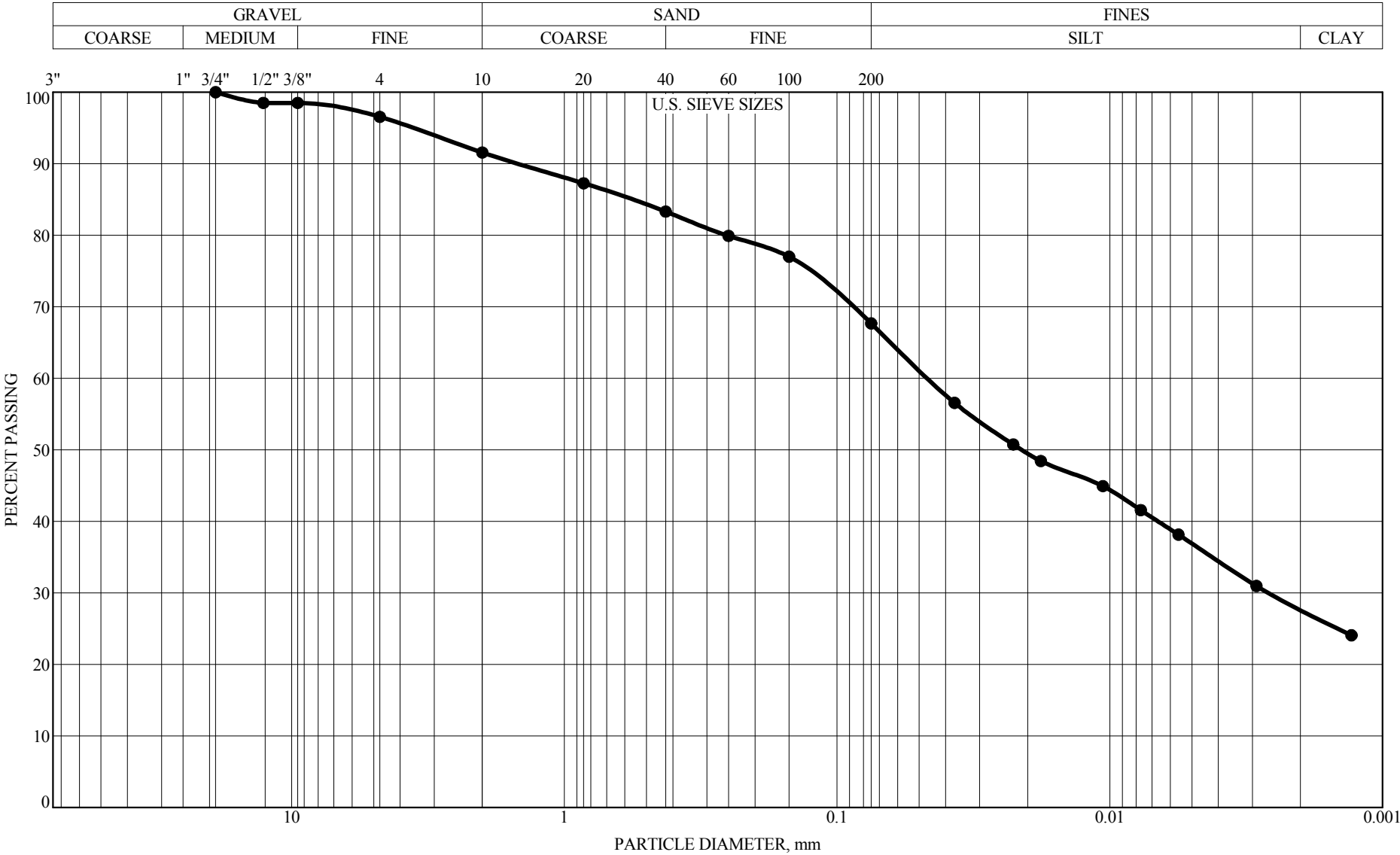
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-06A DEPTH: 1.1'-10.0'

GRAVEL 4.2%
SAND 10.0%
SILT 48.7%
CLAY 37.1%

CLASSIFICATION:
A-7-6 (28), brown
FAT CLAY(CH)

LL=51, PL=20, PI=31, P200=85.8%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



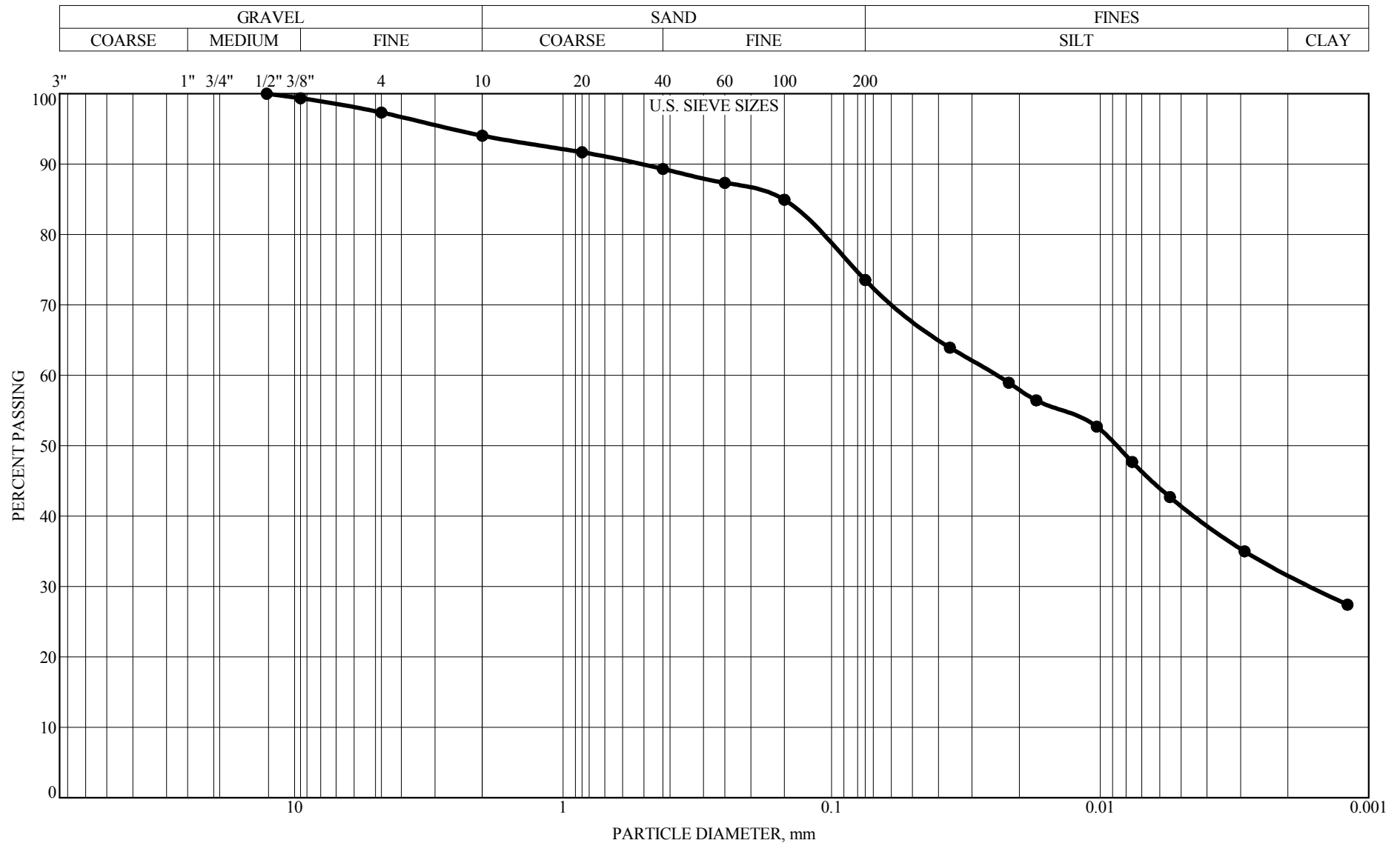
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-07 DEPTH: 1.2'-10.0'

GRAVEL 8.4%
SAND 23.9%
SILT 39.9%
CLAY 27.8%

CLASSIFICATION:
A-7-6 (15), brown
SANDY LEAN CLAY(CL)

LL=42, PL=17, PI=25, P200=67.7%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



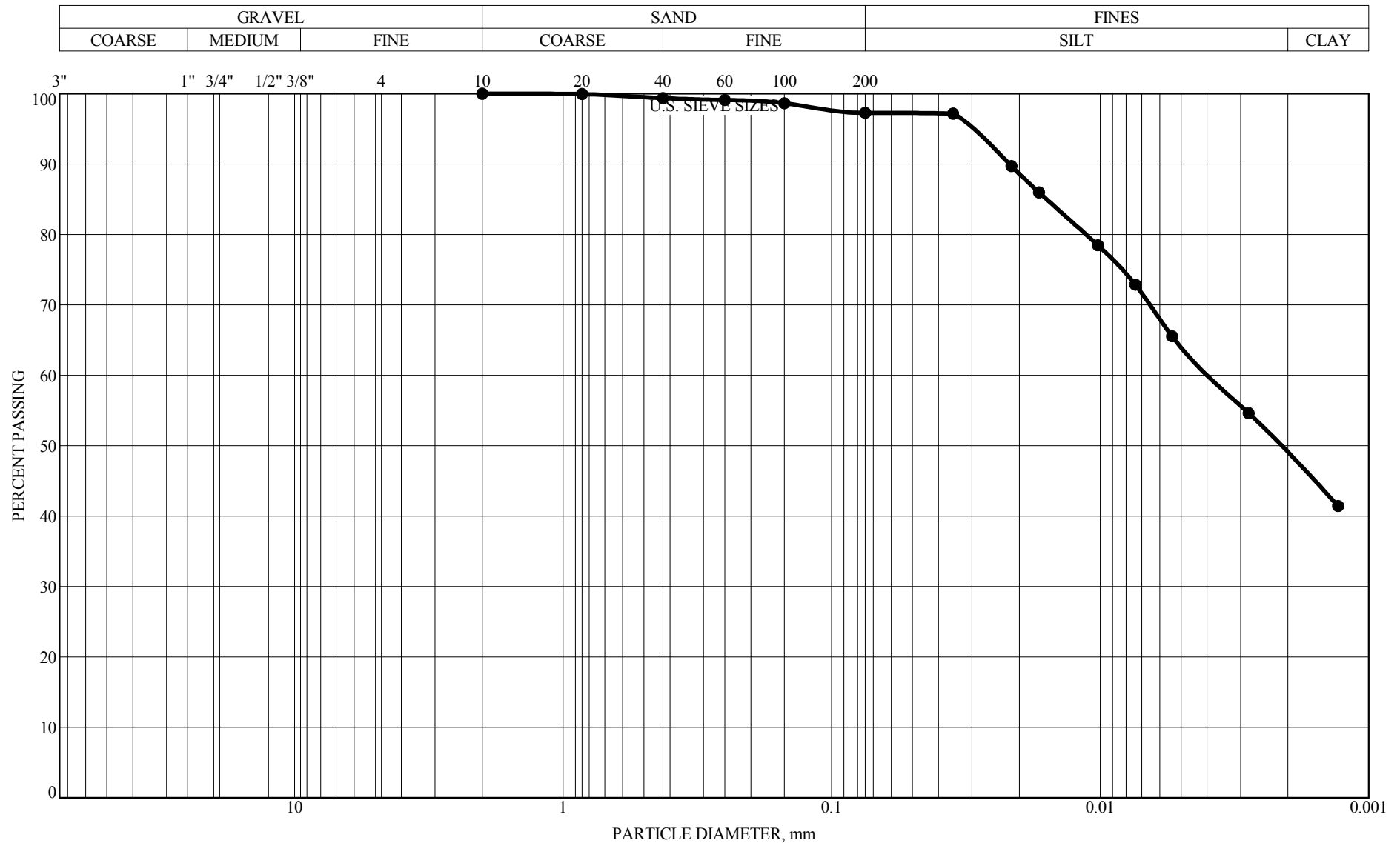
BRAUNSM
INTERTEC

Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
 BORING: LSS-07A DEPTH: 1.3'-10.0'

GRAVEL	6.0%
SAND	20.5%
SILT	41.7%
CLAY	31.8%

CLASSIFICATION:
 A-7-6 (24), brown
 FAT CLAY with SAND(CH)
 LL=51, PL=18, PI=33, P200=73.5%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



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Braun Project BM-13-05525

**Geotechnical Evaluation
 Highway 1804 Reconstruction
 Highway 1804
 New Town, North Dakota**

BORING: LSS-08 DEPTH: 1.2'-10.0'

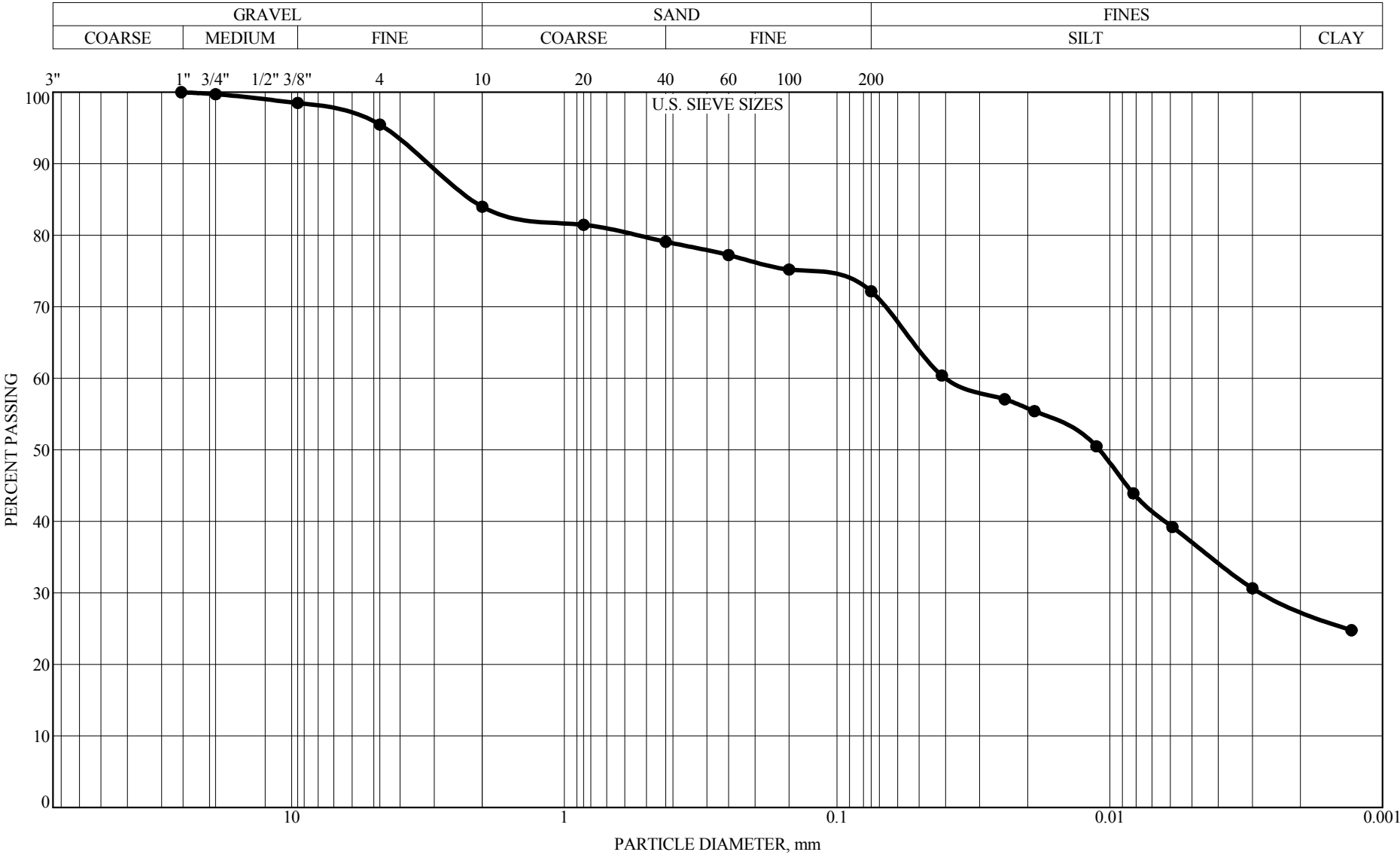
GRAVEL	0.0%
SAND	2.7%
SILT	48.5%
CLAY	48.8%

CLASSIFICATION:

A-7-6 (47), brown
 FAT CLAY(CH)

 LL=62, PL=18, PI=44, P200=97.3%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



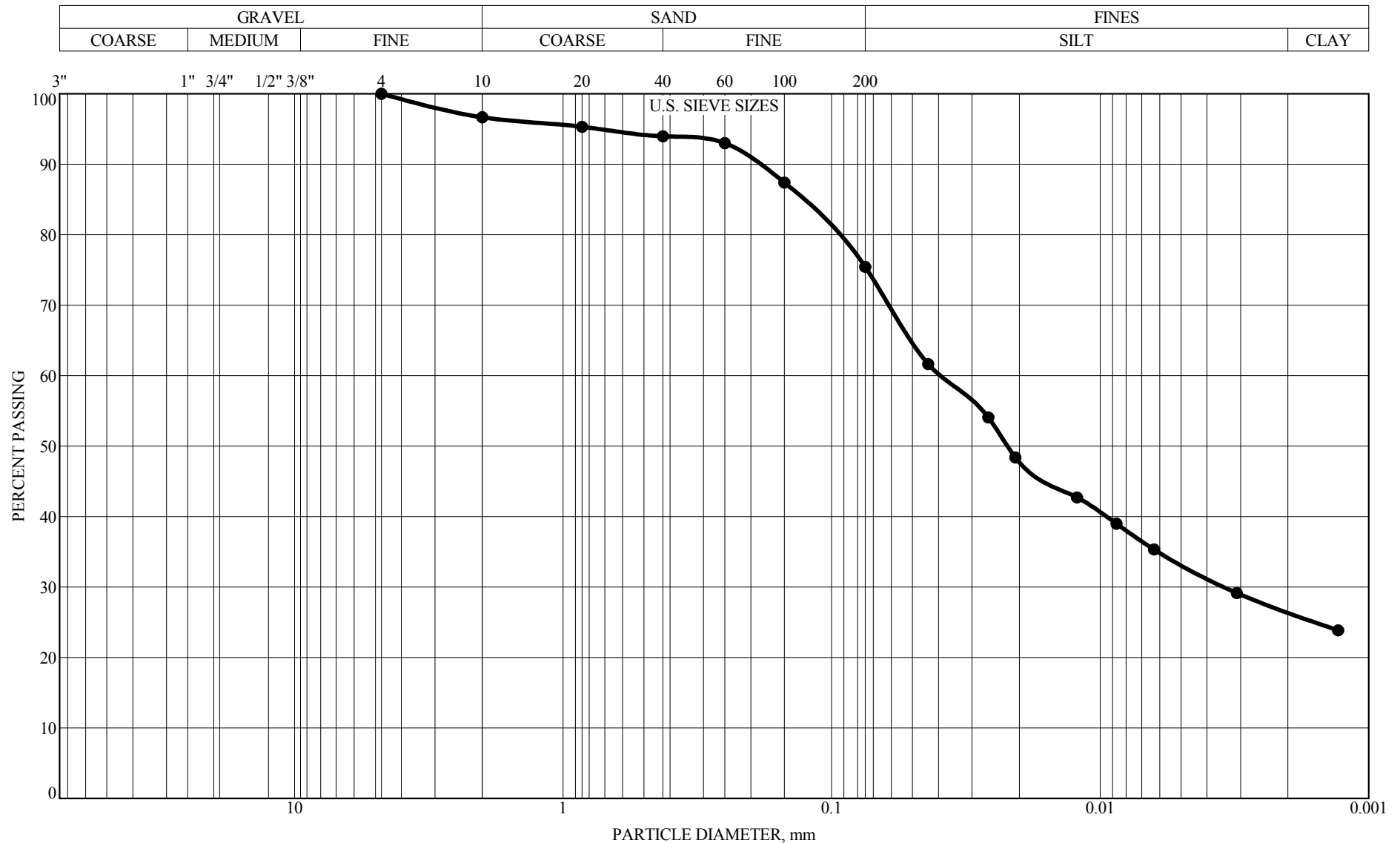
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-08A DEPTH: 1.2'-10.0'

GRAVEL 16.0%
SAND 11.8%
SILT 44.4%
CLAY 27.8%

CLASSIFICATION:
A-7-6 (22), brown
LEAN CLAY with SAND(CL)

LL=49, PL=17, PI=32, P200=72.2%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



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Braun Project BM-13-05525

Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-09 DEPTH: 1.1'-9.0'

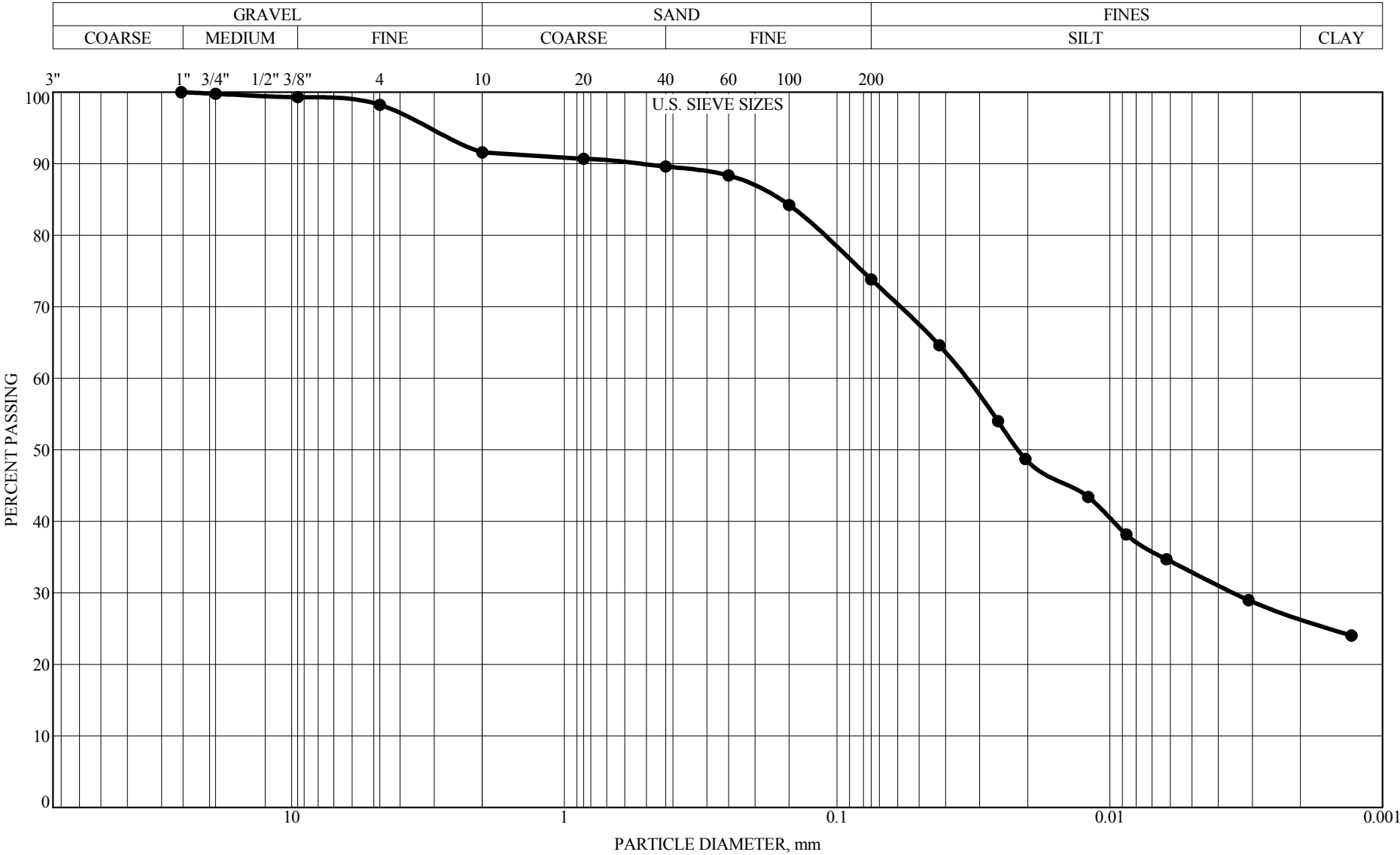
GRAVEL	3.3%
SAND	21.2%
SILT	49.0%
CLAY	26.5%

CLASSIFICATION:

A-6 (15), brown
LEAN CLAY with SAND(CL)

LL=38, PL=16, PI=22, P200=75.5%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



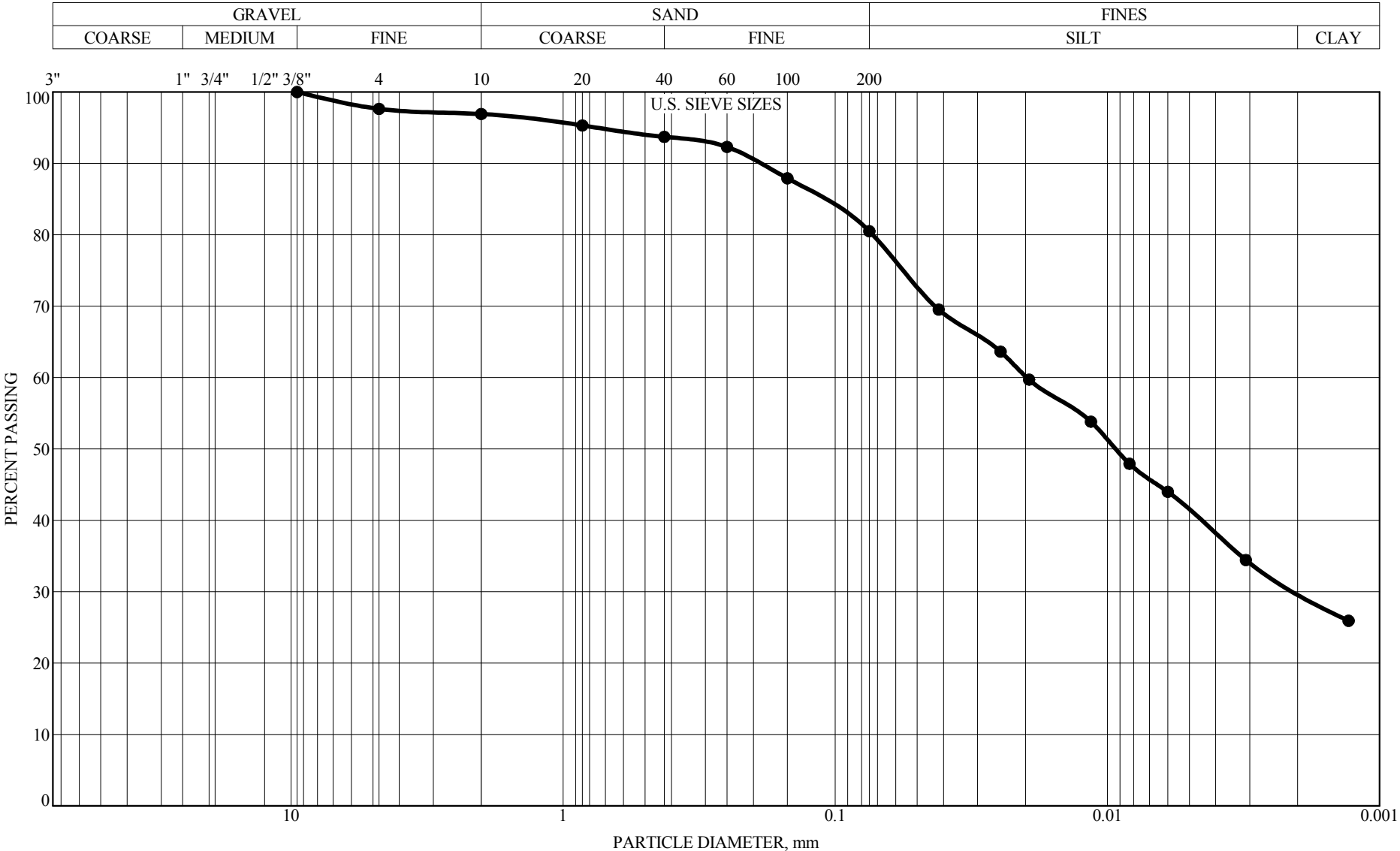
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-09A DEPTH: 1.3'-10.0'

GRAVEL 8.4%
SAND 17.8%
SILT 47.3%
CLAY 26.5%

CLASSIFICATION:
A-6 (14), brown
LEAN CLAY with SAND(CL)

LL=38, PL=17, PI=21, P200=73.8%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

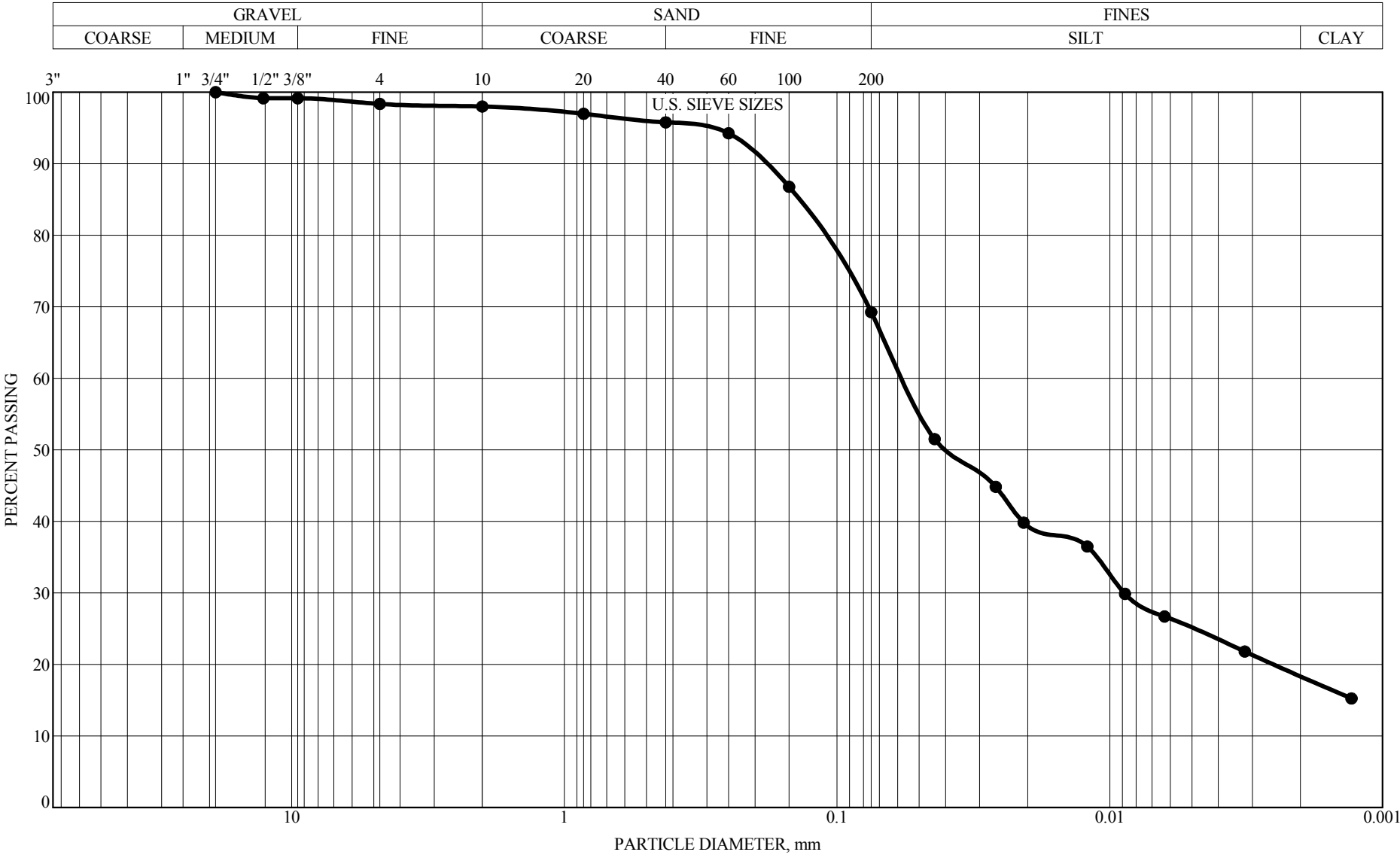


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-10 DEPTH: 1.2'-10.0'

GRAVEL 3.1%
SAND 16.4%
SILT 50.4%
CLAY 30.1%

CLASSIFICATION:
A-6 (18), brown
LEAN CLAY with SAND(CL)
LL=40, PL=17, PI=23, P200=80.5%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

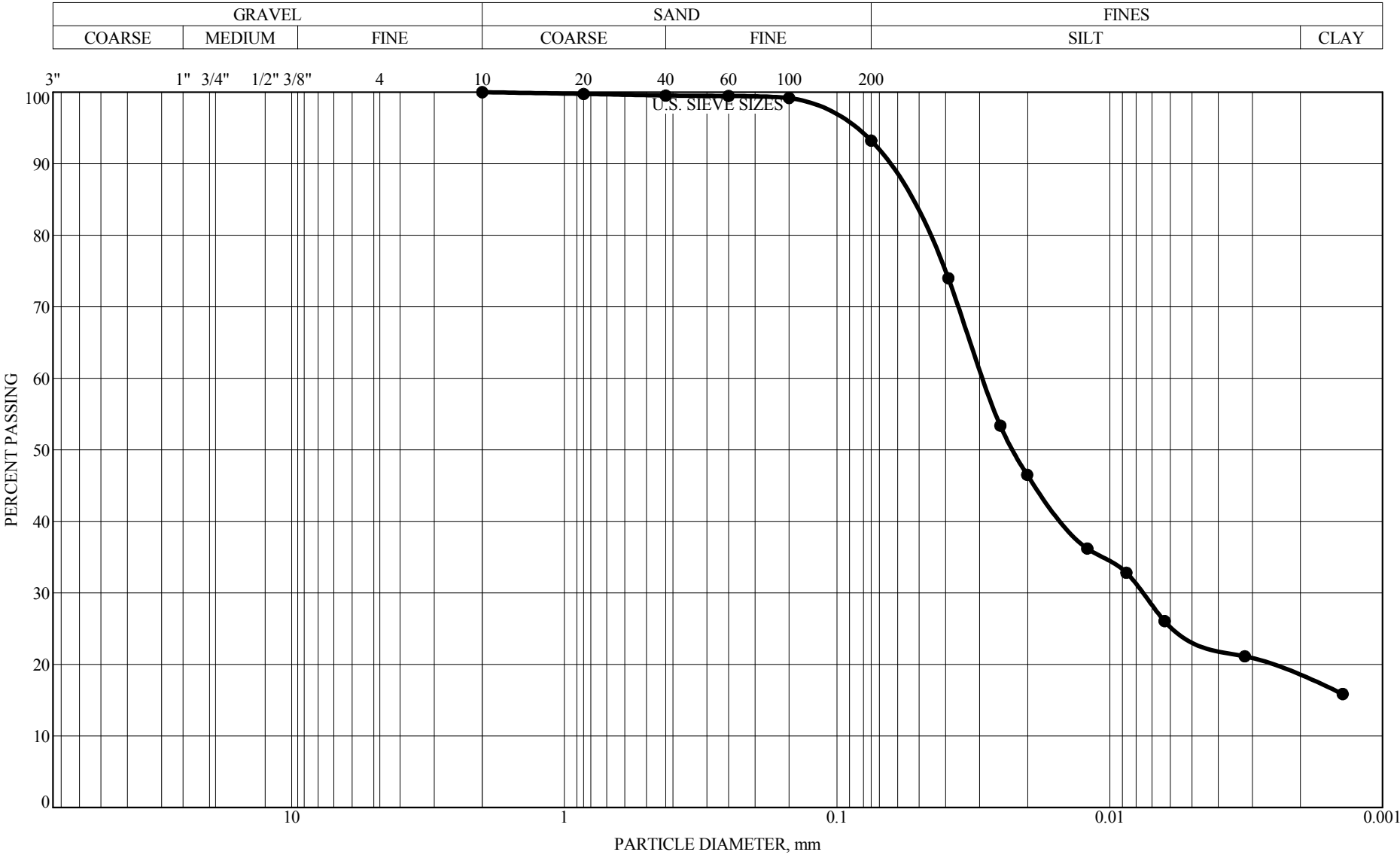


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-10A DEPTH: 1.1'-8.0'

GRAVEL 2.0%
SAND 28.7%
SILT 50.9%
CLAY 18.4%

CLASSIFICATION:
A-6 (7), brown
SANDY LEAN CLAY(CL)
LL=30, PL=16, PI=14, P200=69.3%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



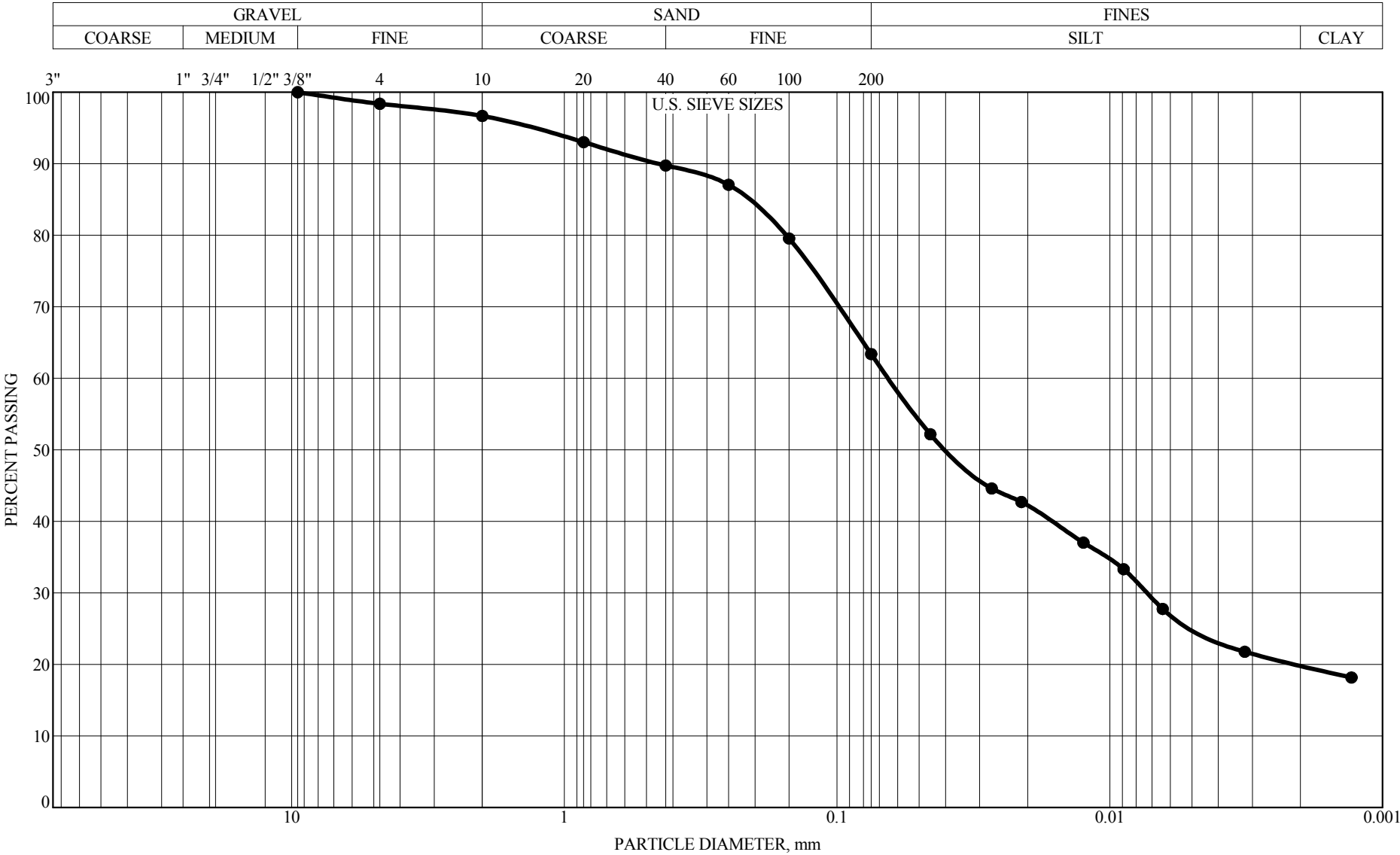
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-11 DEPTH: 1.0'-10.0'

GRAVEL 0.0%
SAND 6.8%
SILT 75.1%
CLAY 18.1%

CLASSIFICATION:
A-6 (11), brown
LEAN CLAY(CL)

LL=33, PL=21, PI=12, P200=93.2%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

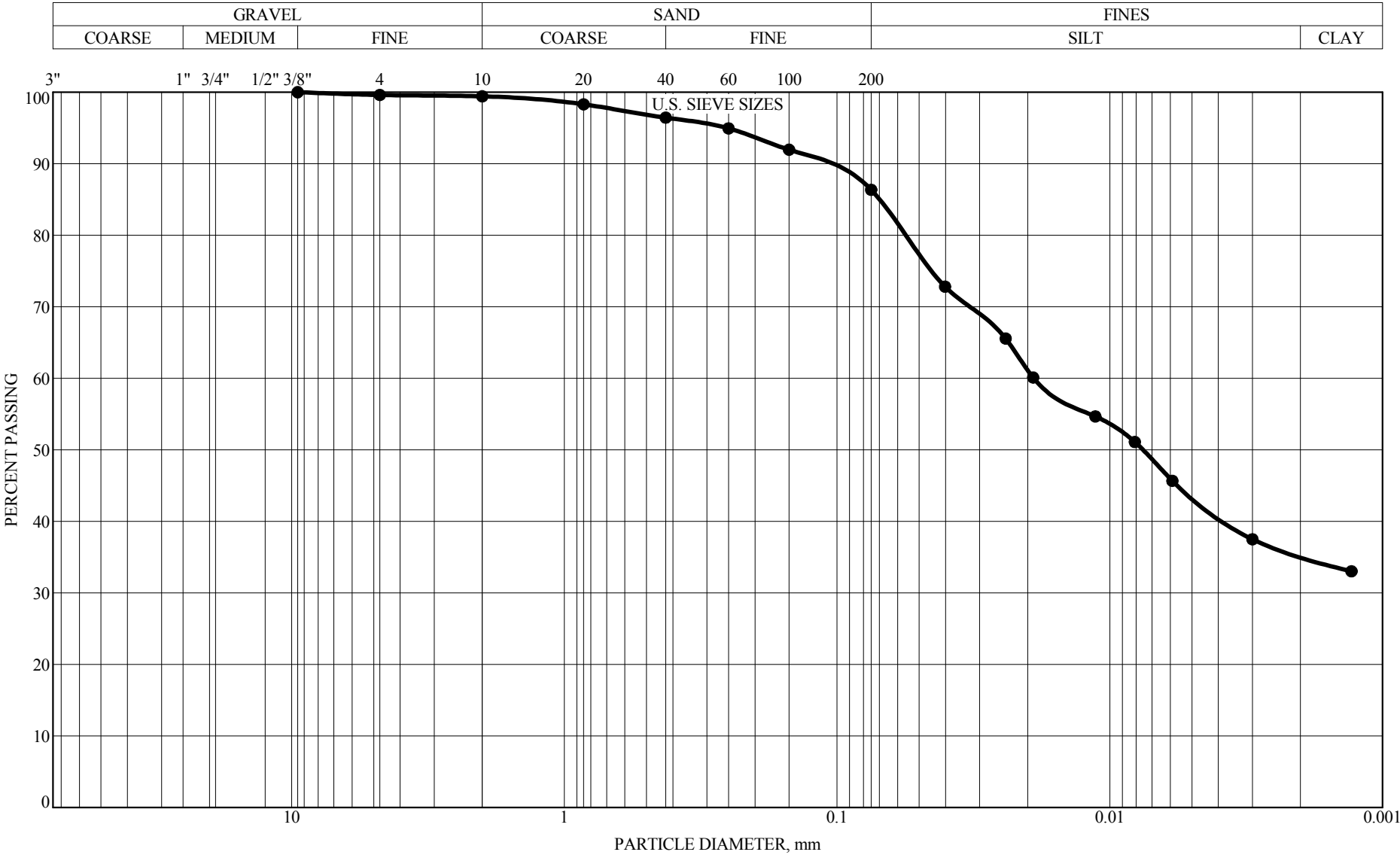


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-11A DEPTH: 1.0'-10.0'

GRAVEL 3.3%
SAND 33.3%
SILT 43.5%
CLAY 19.9%

CLASSIFICATION:
A-6 (9), brown
SANDY LEAN CLAY(CL)
LL=35, PL=16, PI=19, P200=63.4%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



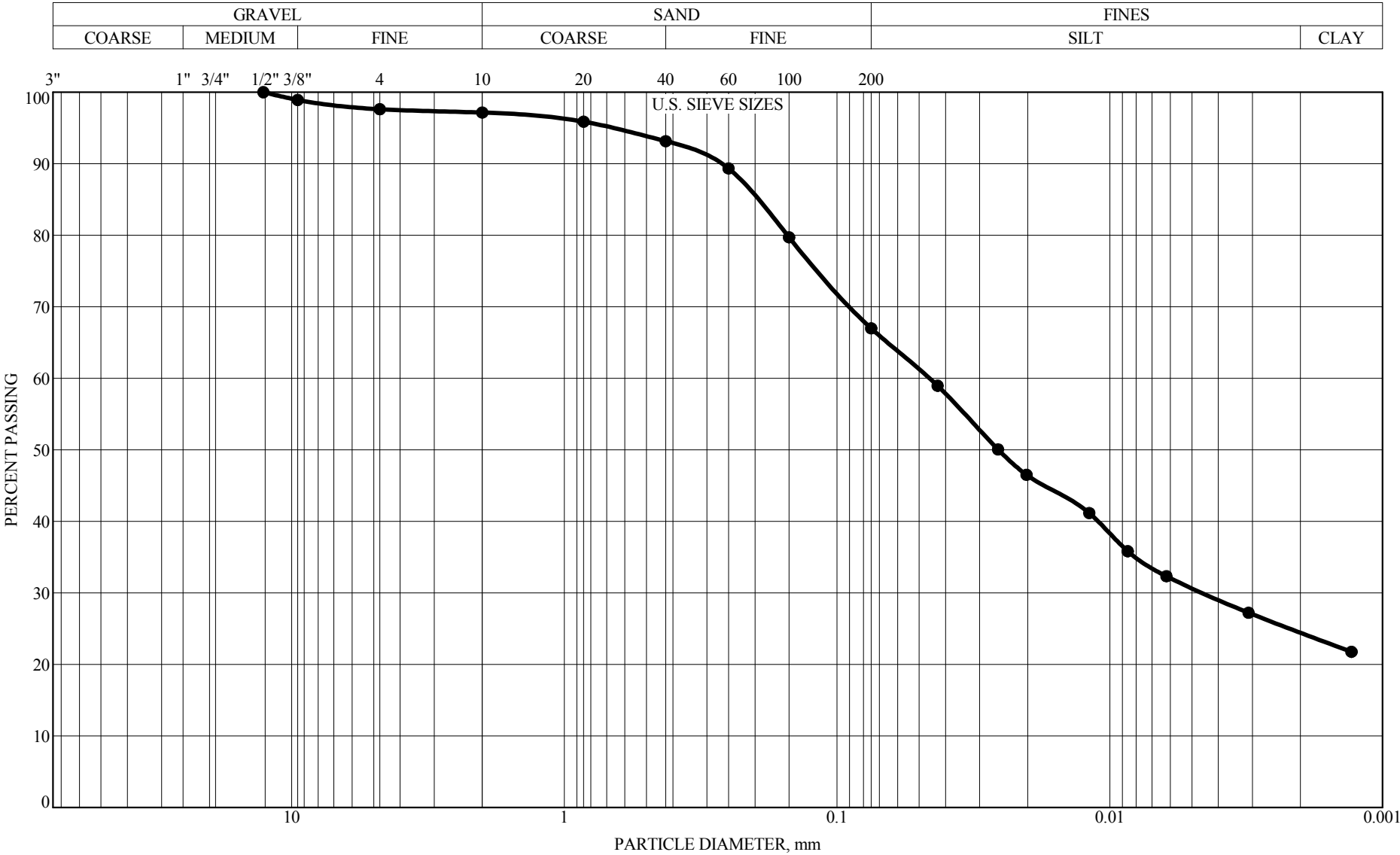
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-12 DEPTH: 1.0'-10.0'

GRAVEL 0.6%
SAND 13.1%
SILT 51.0%
CLAY 35.3%

CLASSIFICATION:
A-7-6 (25), brown
LEAN CLAY(CL)

LL=46, PL=18, PI=28, P200=86.3%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

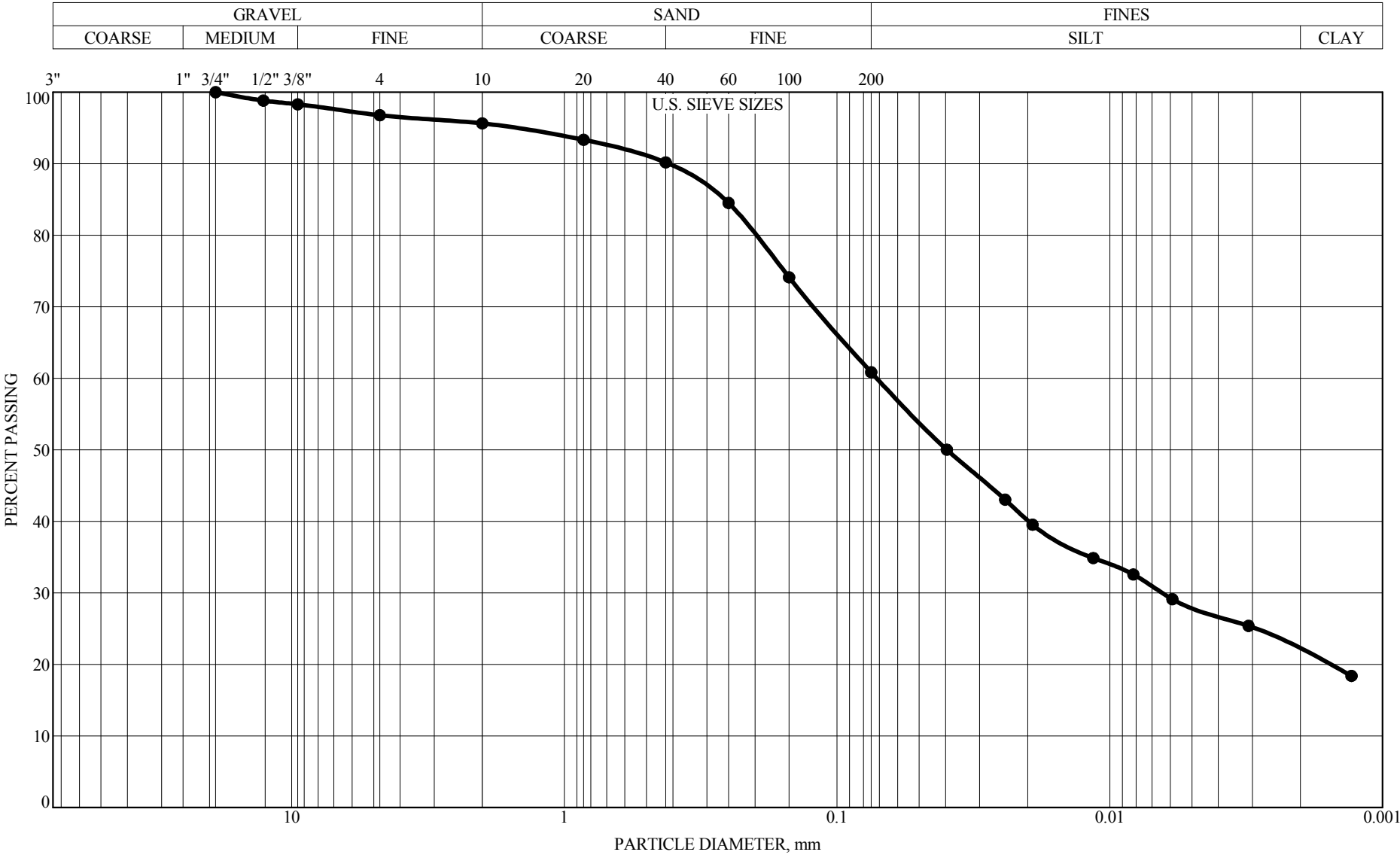


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-12A DEPTH: 1.0'-10.0'

GRAVEL 2.8%
SAND 30.2%
SILT 42.5%
CLAY 24.5%

CLASSIFICATION:
A-6 (10), brown
SANDY LEAN CLAY(CL)
LL=34, PL=15, PI=19, P200=67.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

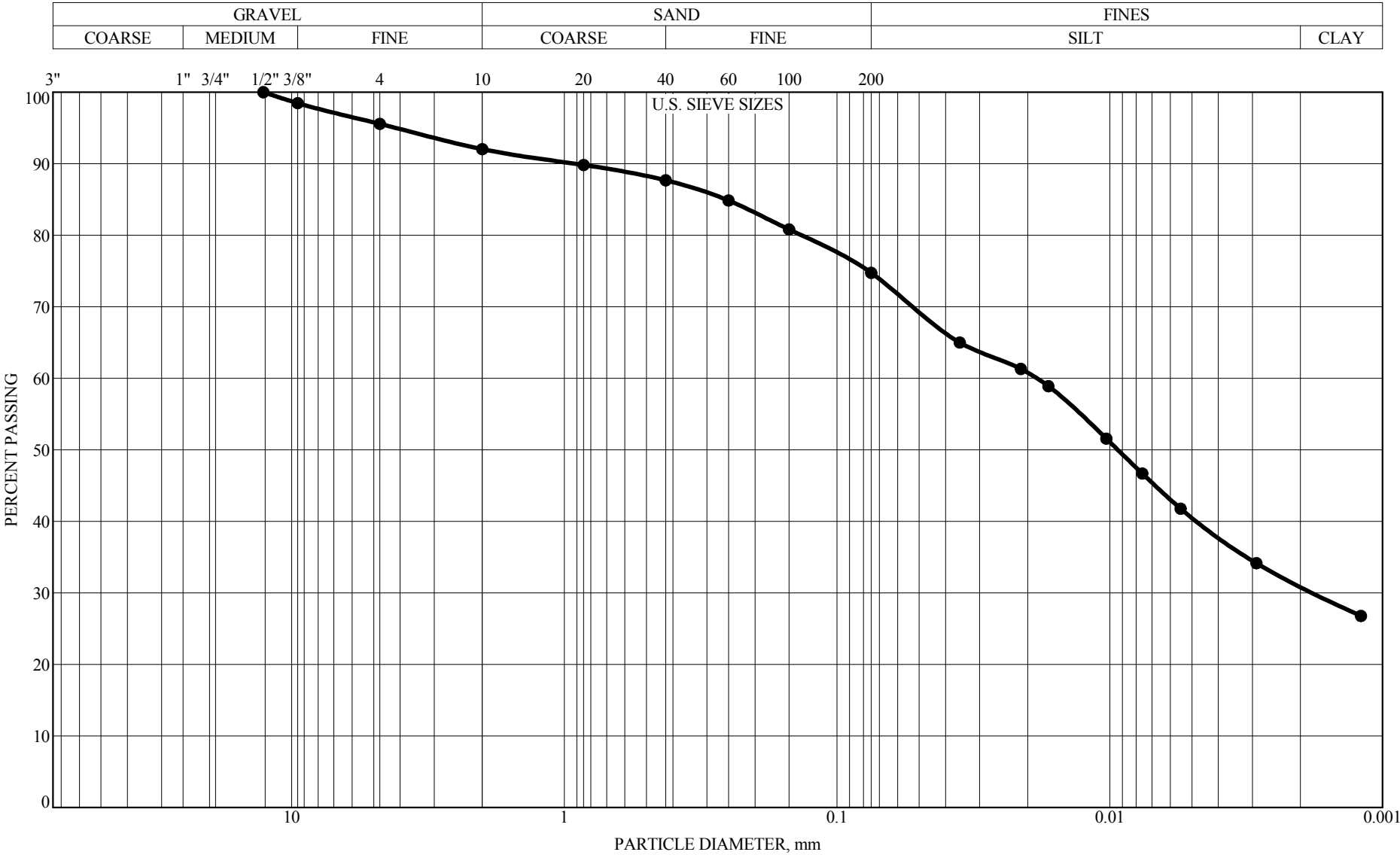


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-13 DEPTH: 1.1'-10.0'

GRAVEL 4.4%
SAND 34.8%
SILT 39.0%
CLAY 21.9%

CLASSIFICATION:
A-6 (9), brown
SANDY LEAN CLAY(CL)
LL=34, PL=15, PI=19, P200=60.9%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

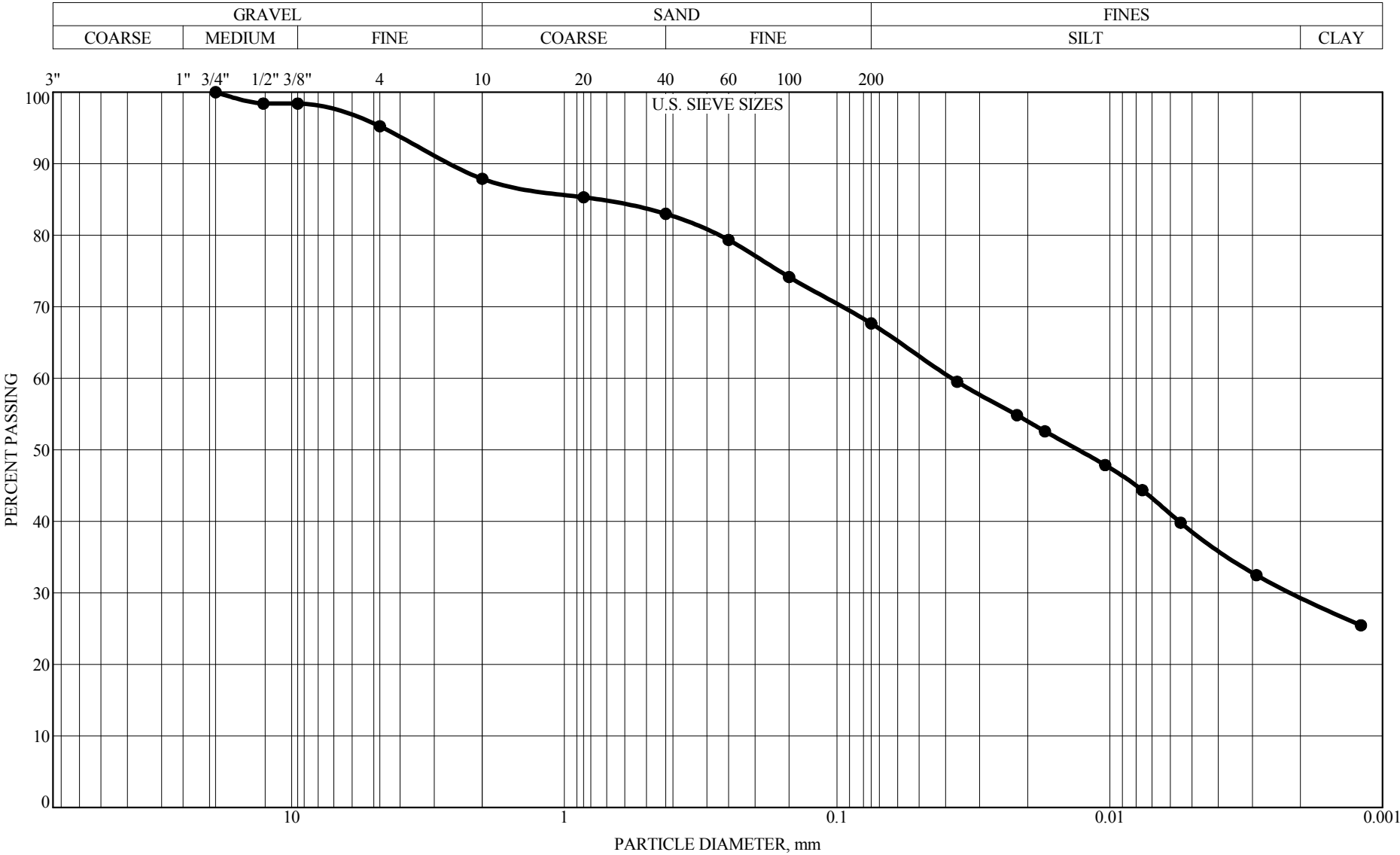


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-13A DEPTH: 0.9'-10.0'

GRAVEL 8.0%
SAND 17.3%
SILT 43.7%
CLAY 31.0%

CLASSIFICATION:
A-7-6 (18), brown
LEAN CLAY with SAND(CL)
LL=44, PL=18, PI=26, P200=74.7%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

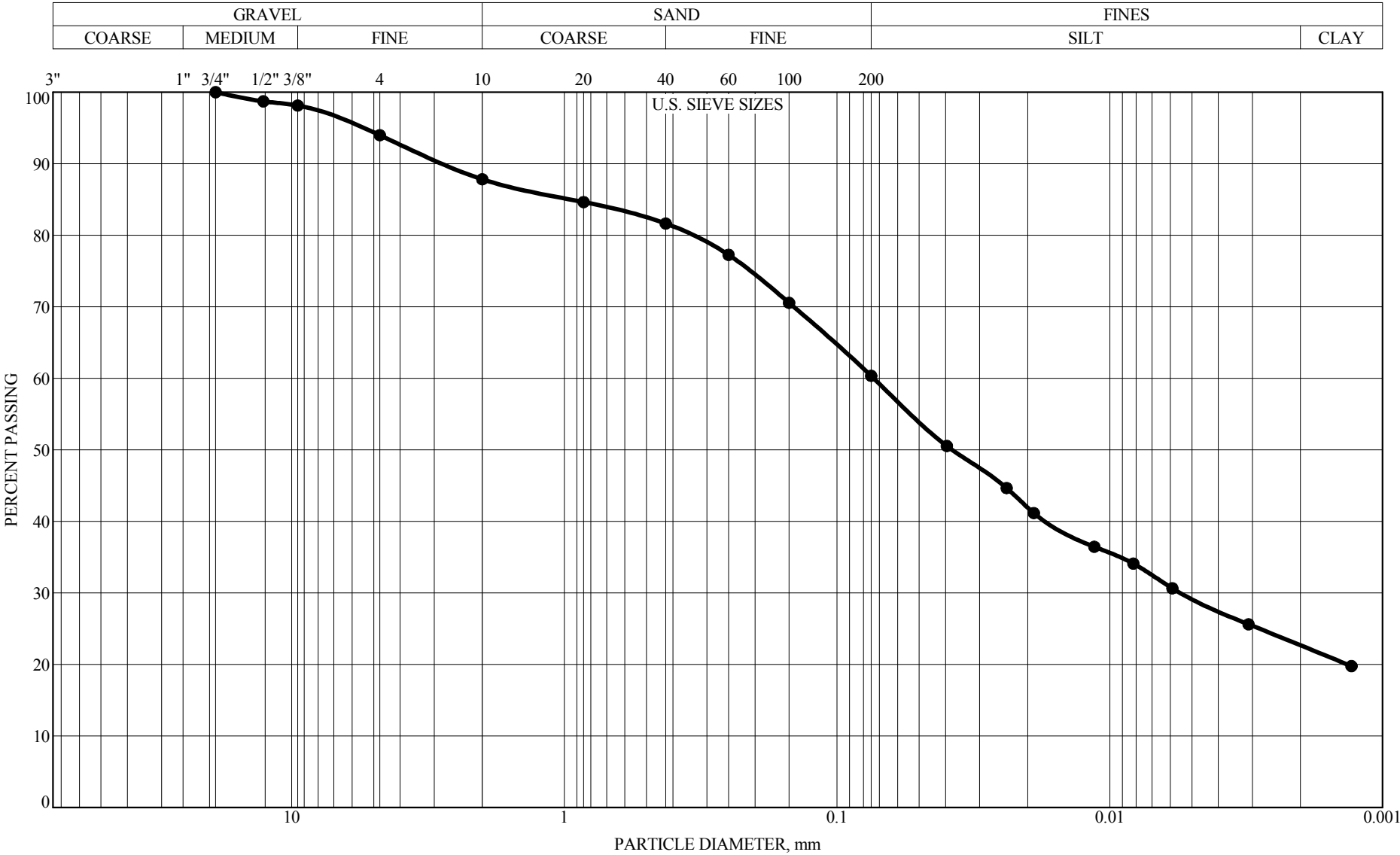


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-14 DEPTH: 0.9'-10.0'

GRAVEL 12.1%
SAND 20.2%
SILT 38.1%
CLAY 29.5%

CLASSIFICATION:
A-7-6 (15), brown
SANDY LEAN CLAY(CL)
LL=42, PL=16, PI=26, P200=67.6%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

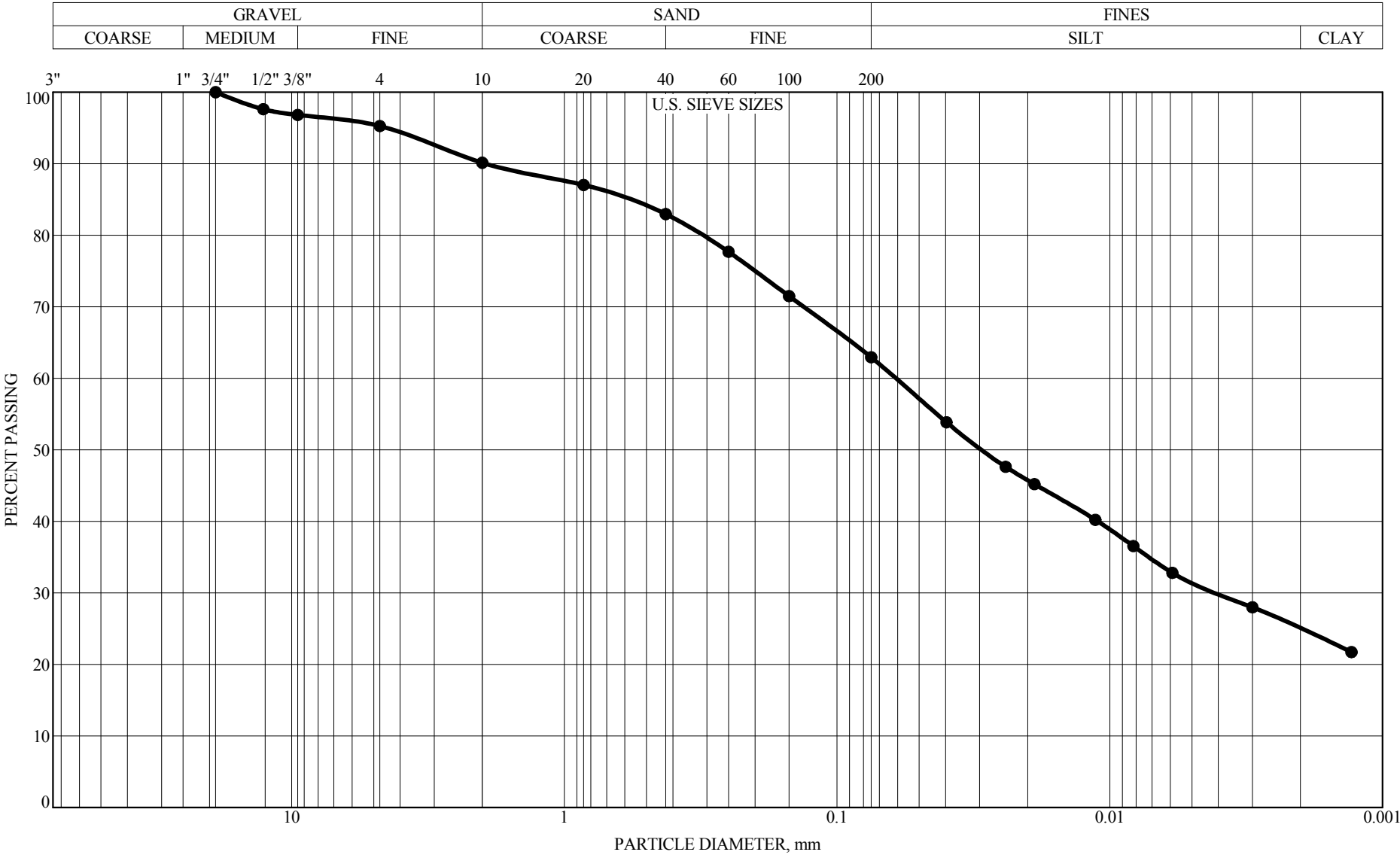


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-14A DEPTH: 0.9'-10.0'

GRAVEL 12.2%
SAND 27.5%
SILT 37.7%
CLAY 22.7%

CLASSIFICATION:
A-6 (10), brown
SANDY LEAN CLAY(CL)
LL=37, PL=15, PI=22, P200=60.4%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



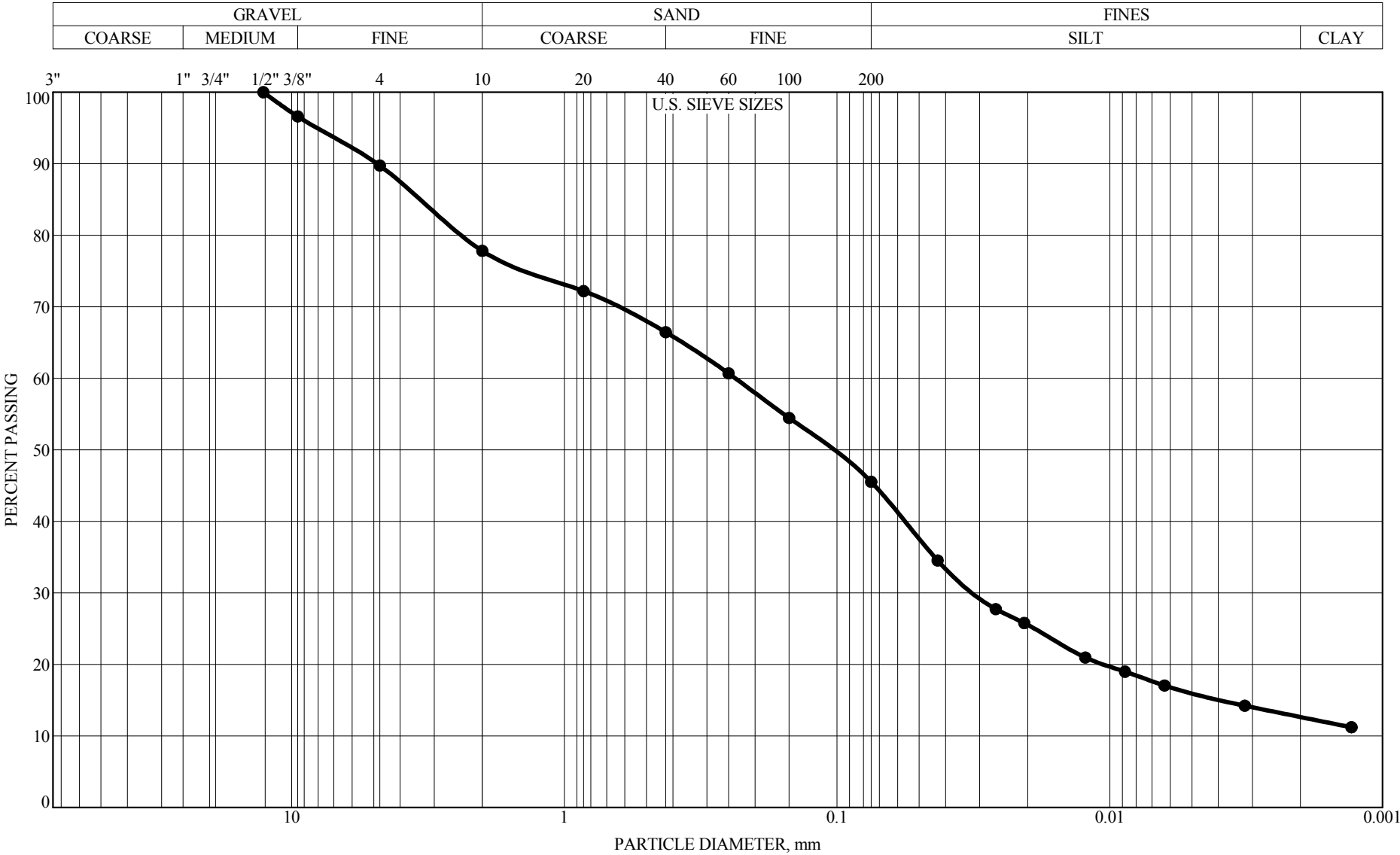
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-15 DEPTH: 0.9'-10.0'

GRAVEL 9.9%
SAND 27.2%
SILT 38.0%
CLAY 25.0%

CLASSIFICATION:
A-6 (13), brown
SANDY LEAN CLAY(CL)

LL=40, PL=15, PI=25, P200=63.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

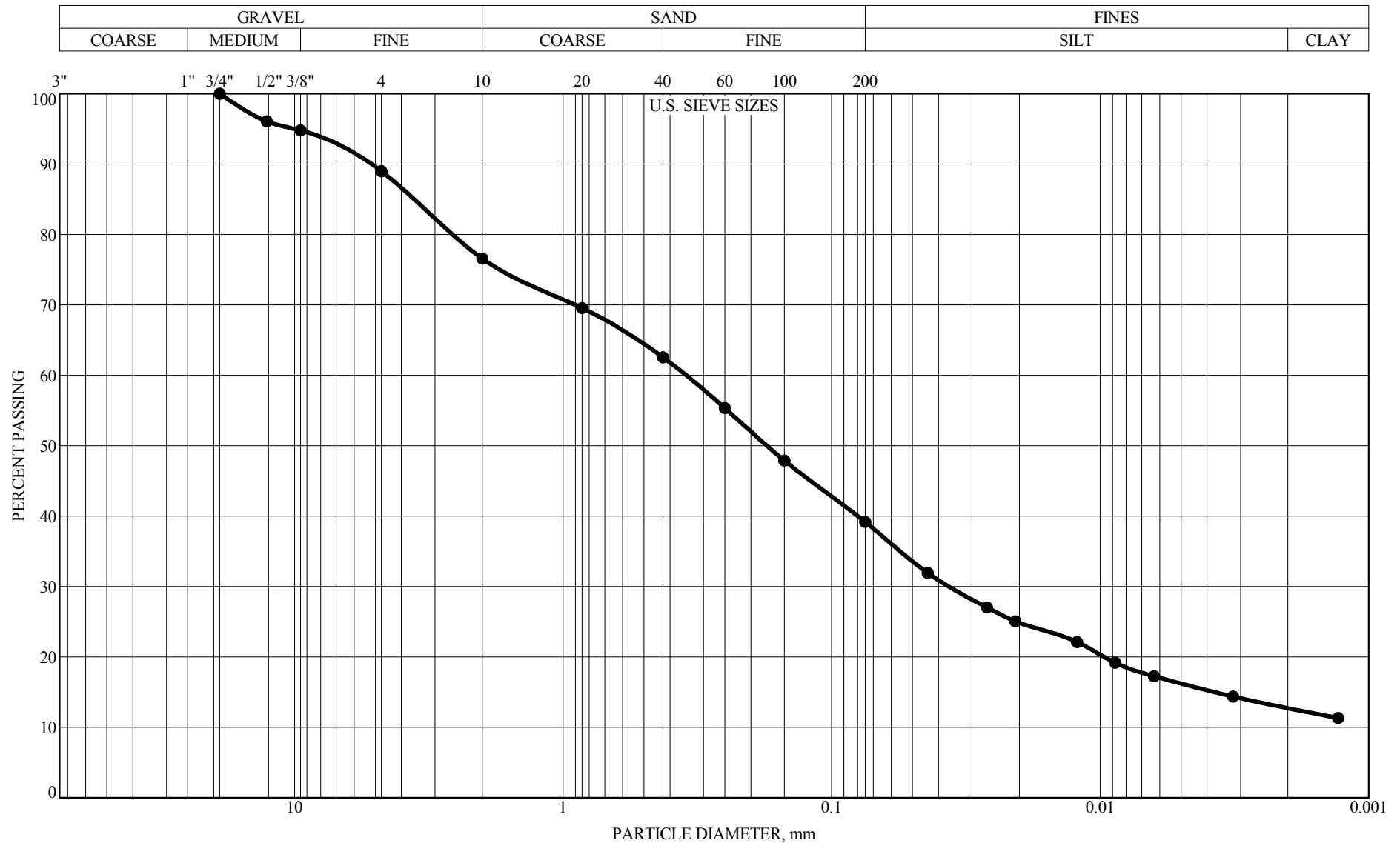


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-15A DEPTH: 1.0'-10.0'

GRAVEL 22.2%
SAND 32.3%
SILT 32.9%
CLAY 12.7%

CLASSIFICATION:
A-6 (3), brown
CLAYEY SAND(SC)
LL=30, PL=16, PI=14, P200=45.6%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



Braun Project BM-13-05525

**Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota**

BORING: LSS-16 DEPTH: 0.9'-8.0'

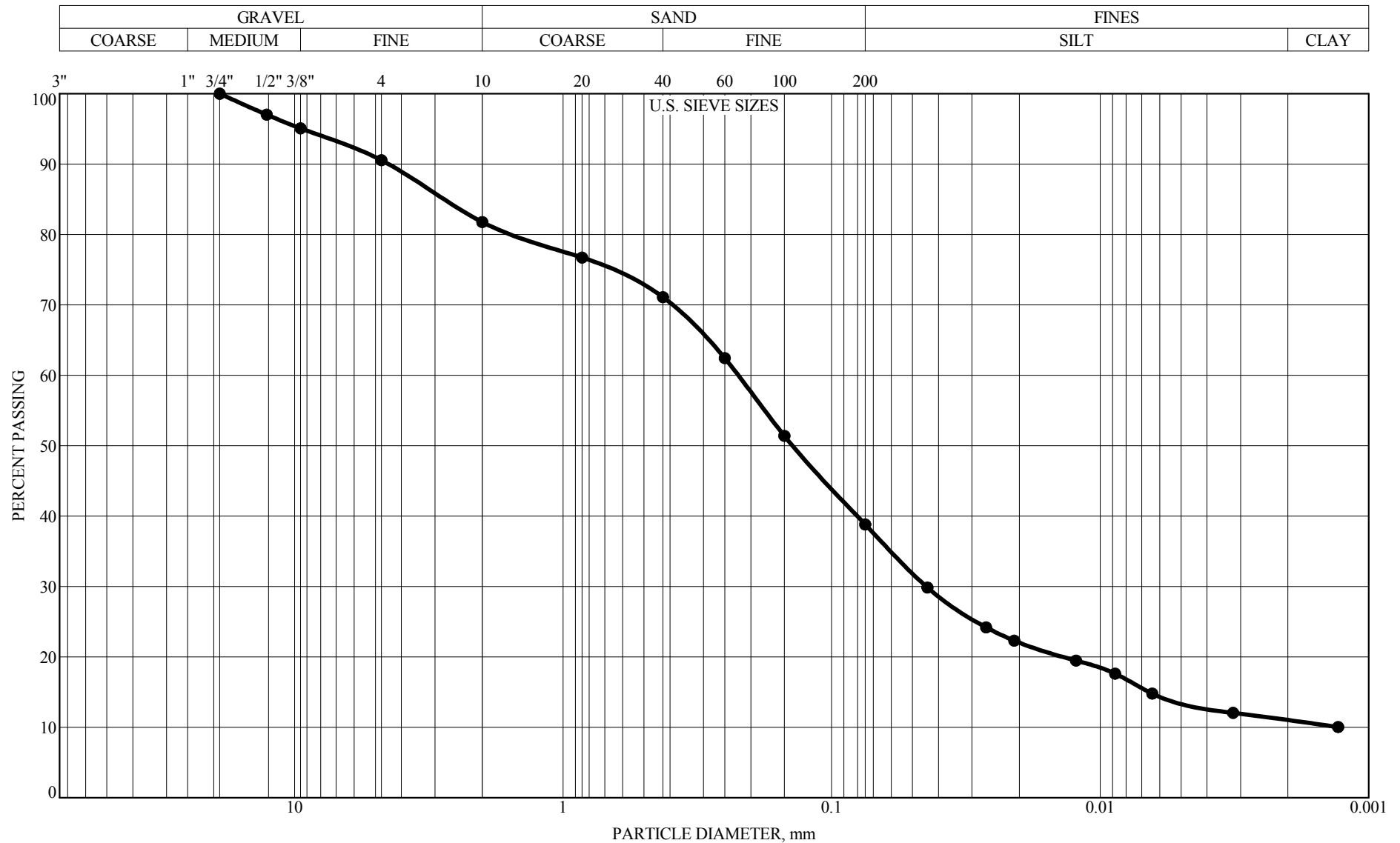
GRAVEL	23.4%
SAND	37.4%
SILT	26.4%
CLAY	12.8%

CLASSIFICATION:

A-6 (2), brown
CLAYEY SAND(SC)

LL=30, PL=14, PI=16, P200=39.2%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



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Braun Project BM-13-05525

Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota

BORING: LSS-16A DEPTH: 1.0'-10.0'

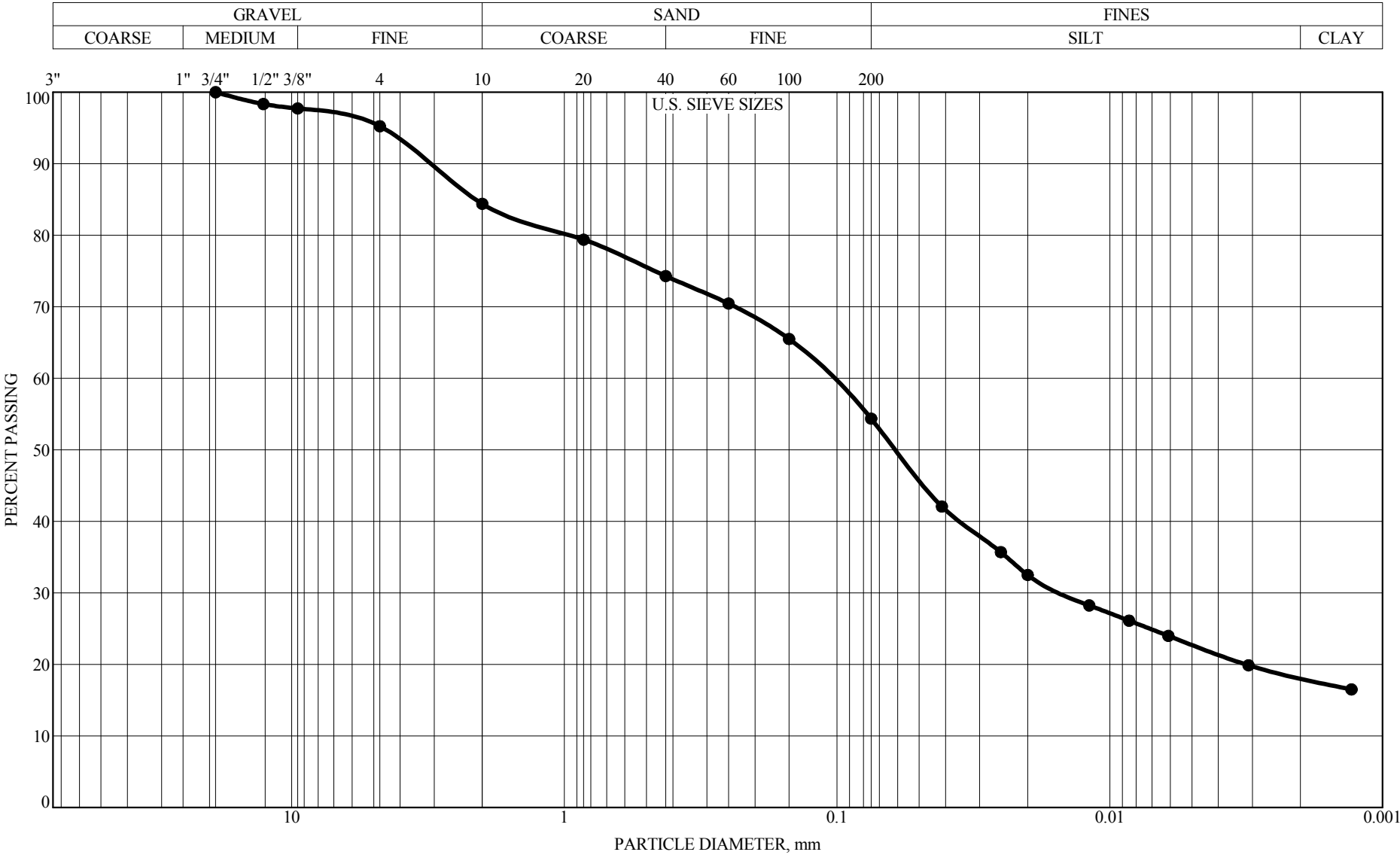
GRAVEL	18.2%
SAND	42.9%
SILT	27.8%
CLAY	11.0%

CLASSIFICATION:

A-6 (1), brown
 CLAYEY SAND(SC)

LL=26, PL=15, PI=11; P200=38.8%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



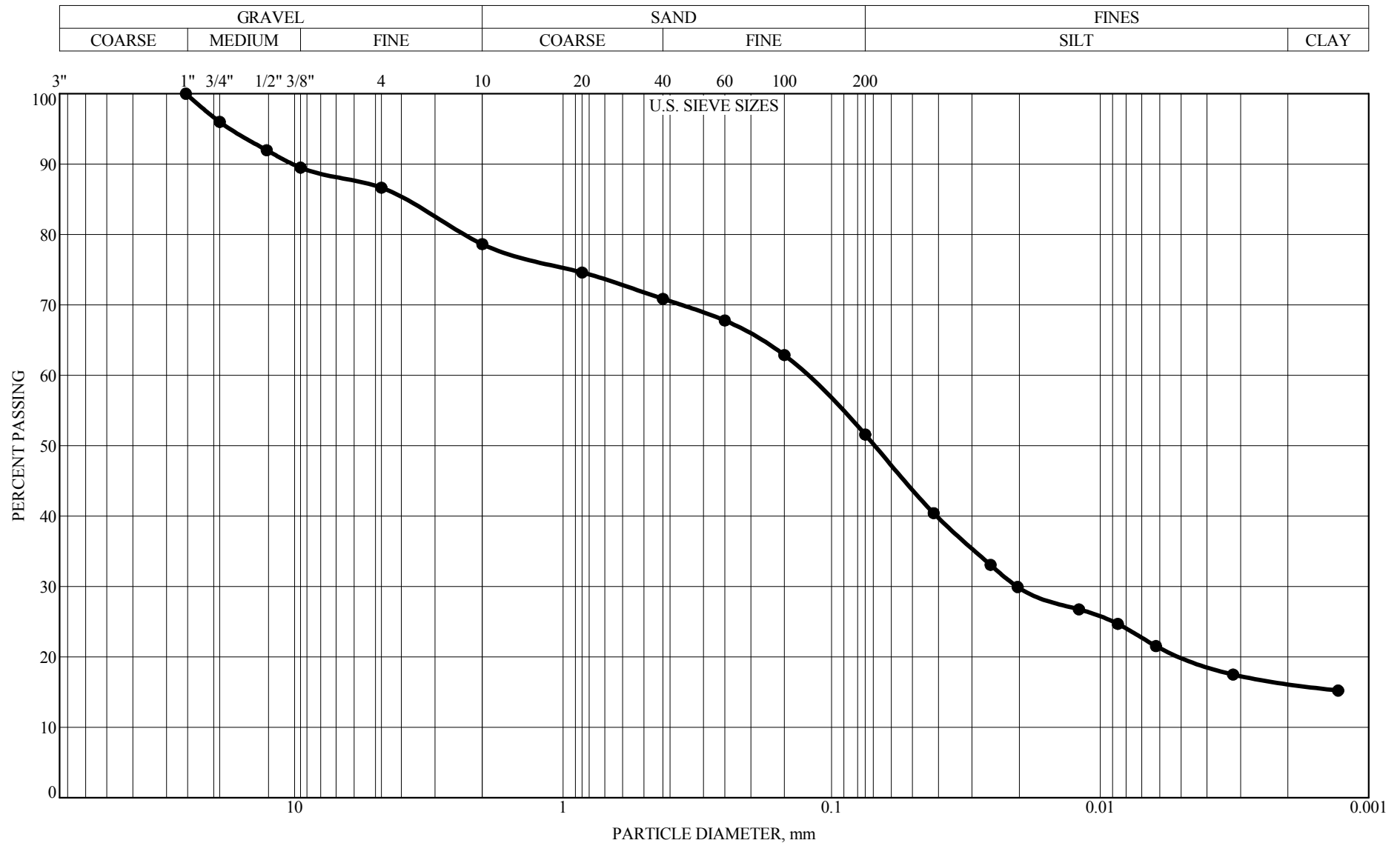
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-17 DEPTH: 1.0'-10.0'

GRAVEL 15.6%
SAND 30.0%
SILT 36.2%
CLAY 18.2%

CLASSIFICATION:
A-6 (8), brown
SANDY LEAN CLAY(CL)

LL=37, PL=15, PI=22, P200=54.4%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



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Braun Project BM-13-05525

Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota

BORING: LSS-18 DEPTH: 0.9'-10.0'

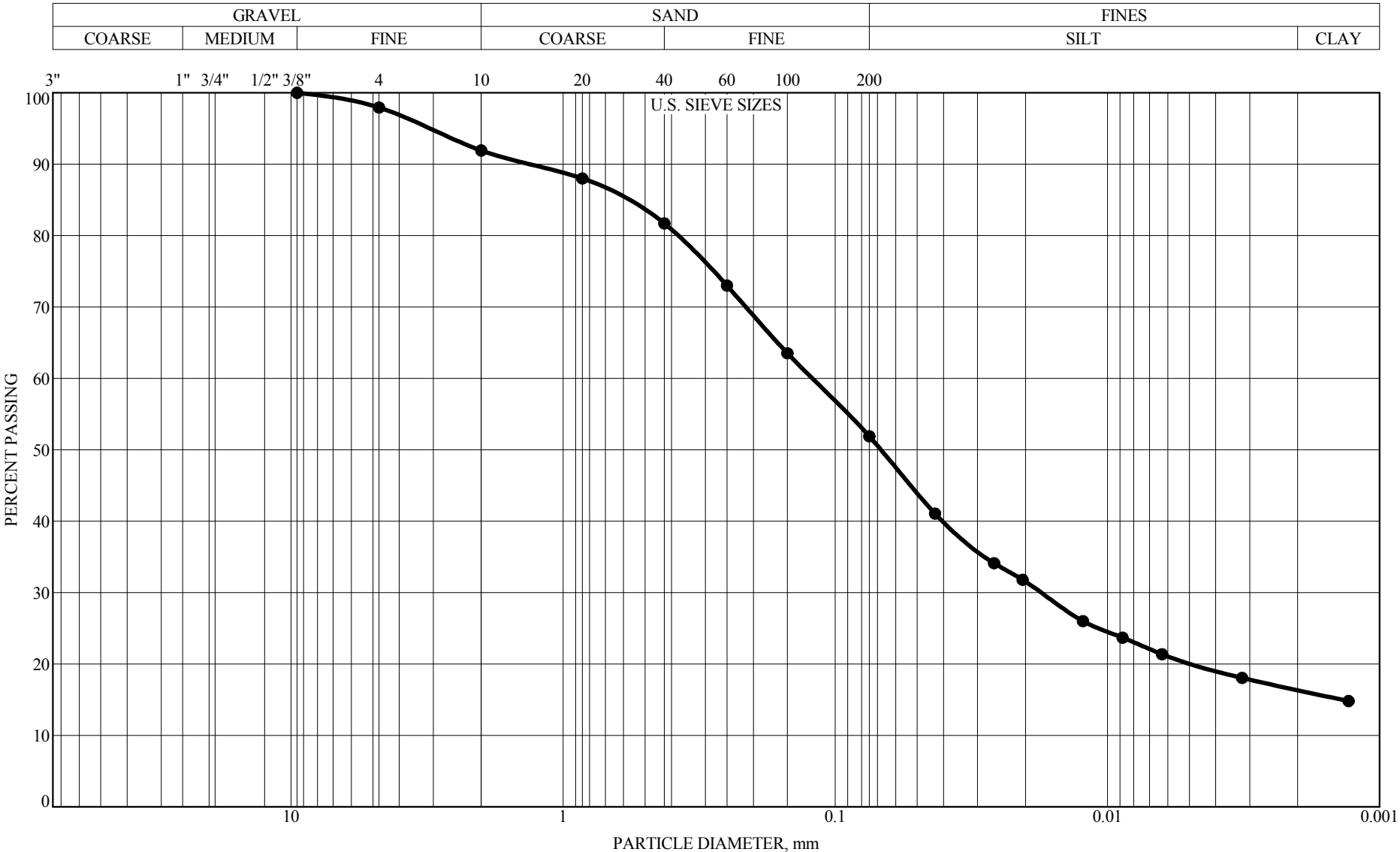
GRAVEL	21.4%
SAND	27.0%
SILT	35.3%
CLAY	16.3%

CLASSIFICATION:

A-6 (8), brown
SANDY LEAN CLAY(CL)

LL=38, PL=14, PI=24, P200=51.6%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

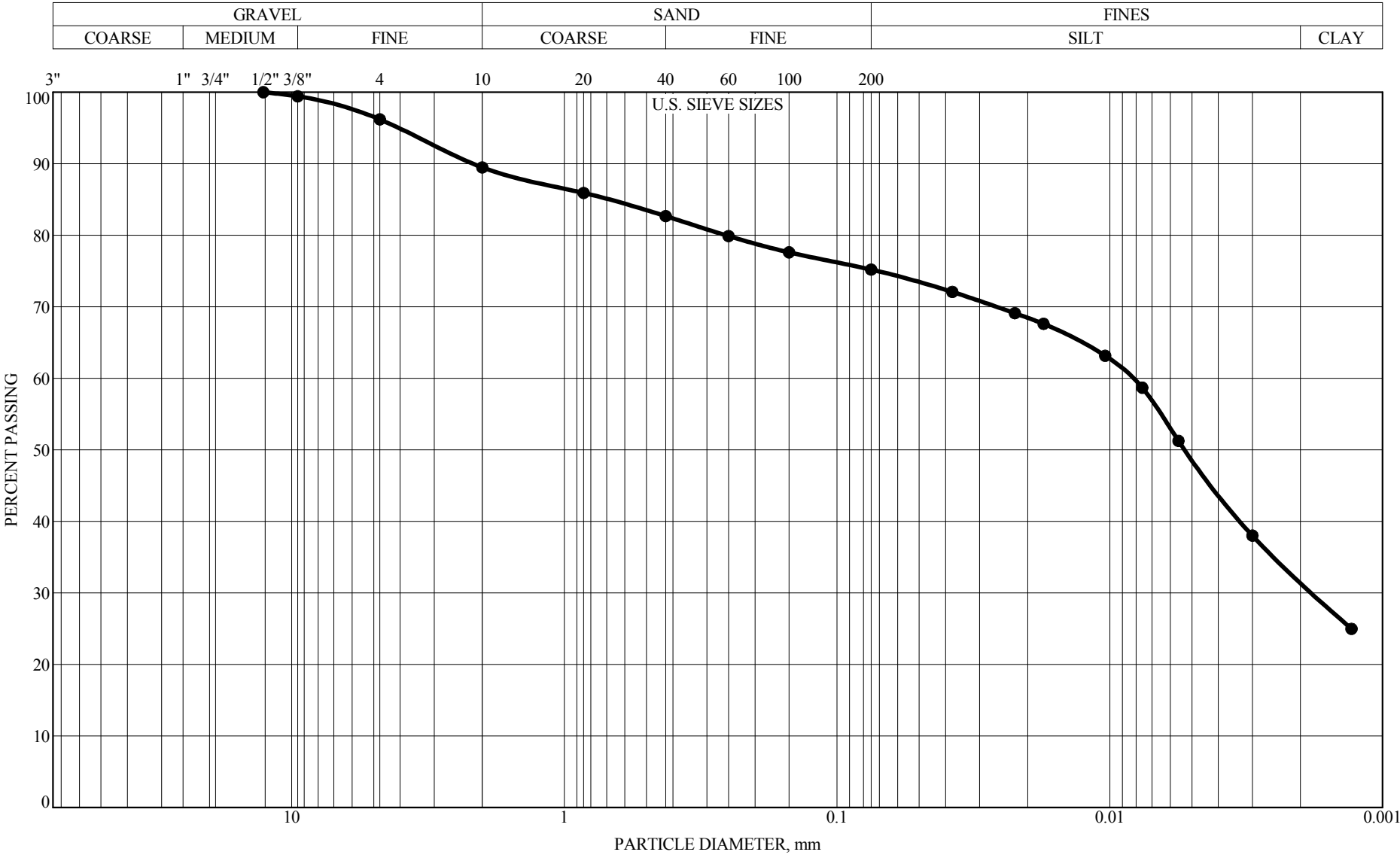


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-19 DEPTH: 0.9'-10.0'

GRAVEL 8.1%
SAND 40.0%
SILT 35.5%
CLAY 16.4%

CLASSIFICATION:
A-6 (5), brown
SANDY LEAN CLAY(CL)
LL=31, PL=15, PI=16, P200=51.9%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

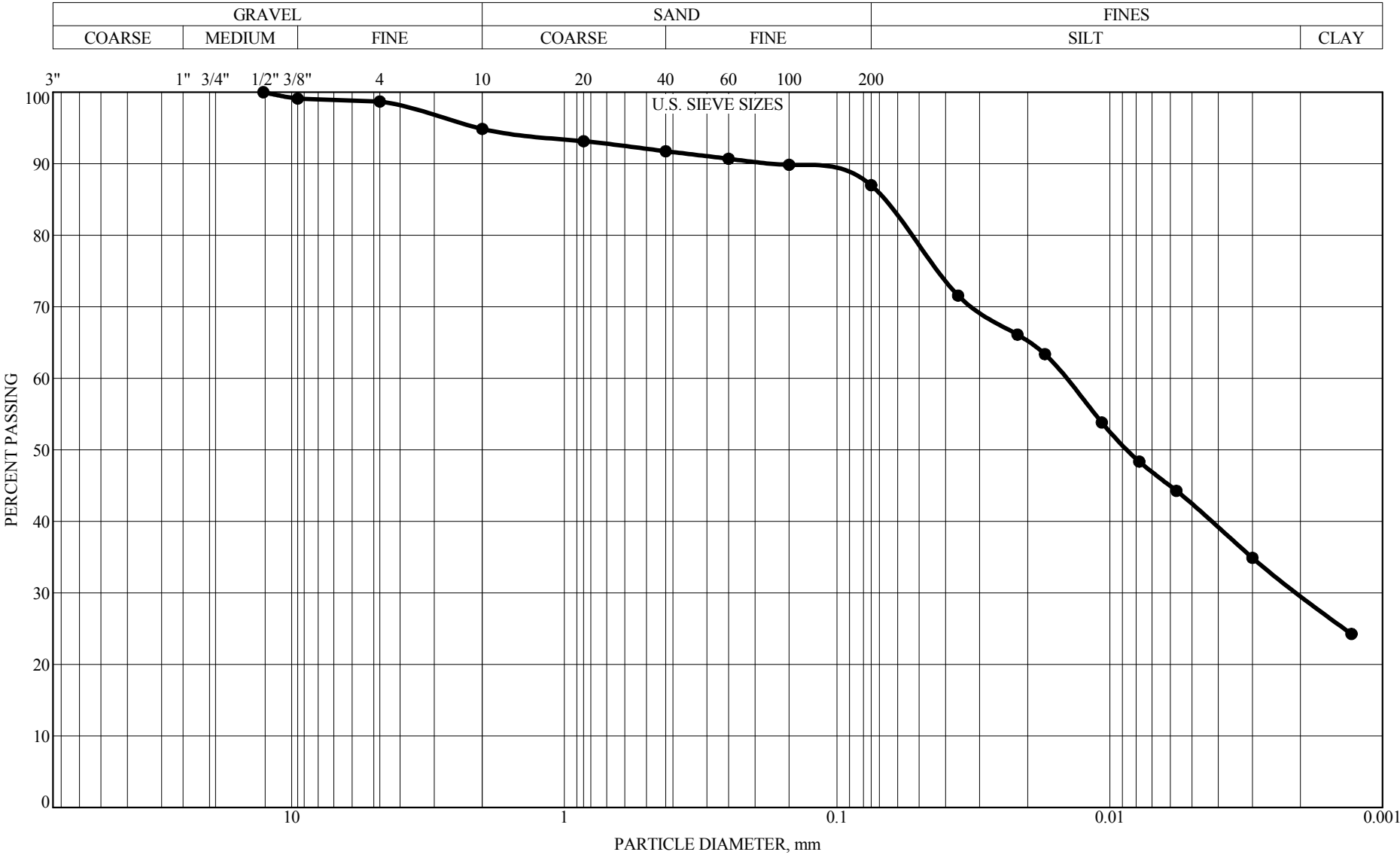


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-20 DEPTH: 1.0'-6.0'

GRAVEL 10.5%
SAND 14.3%
SILT 43.5%
CLAY 31.7%

CLASSIFICATION:
A-6 (11), brown
LEAN CLAY with SAND(CL)
LL=35, PL=18, PI=17, P200=75.2%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



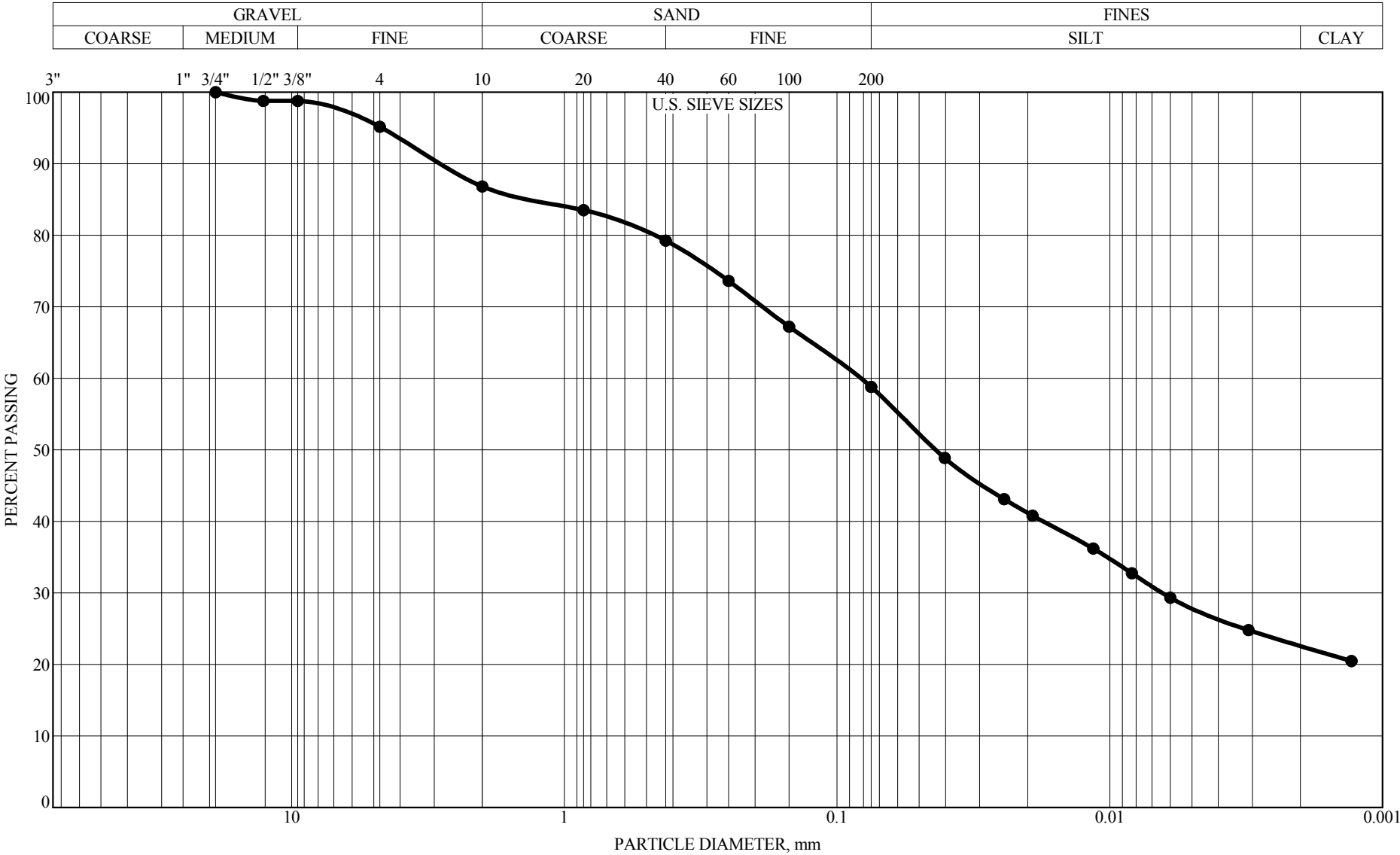
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-21 DEPTH: 1.6'-6.0'

GRAVEL 5.1%
SAND 7.9%
SILT 57.3%
CLAY 29.7%

CLASSIFICATION:
A-6 (17), brown
LEAN CLAY(CL)

LL=40, PL=21, PI=19, P200=87.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



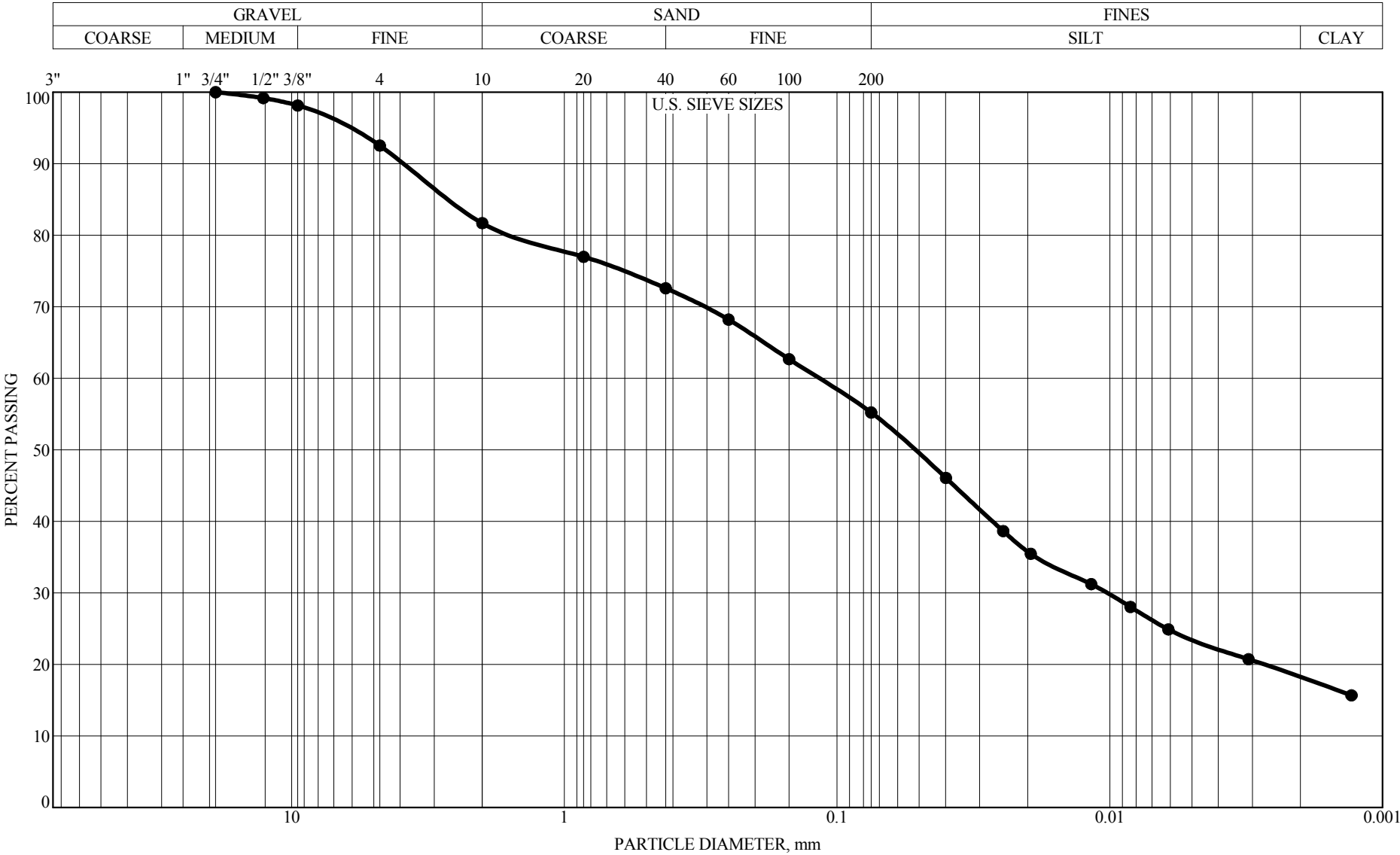
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-22 DEPTH: 1.1'-10.0'

GRAVEL	13.2%
SAND	28.0%
SILT	36.2%
CLAY	22.6%

CLASSIFICATION:
A-6 (11), brown
SANDY LEAN CLAY(CL)

LL=37, PL=13, PI=24, P200=58.8%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

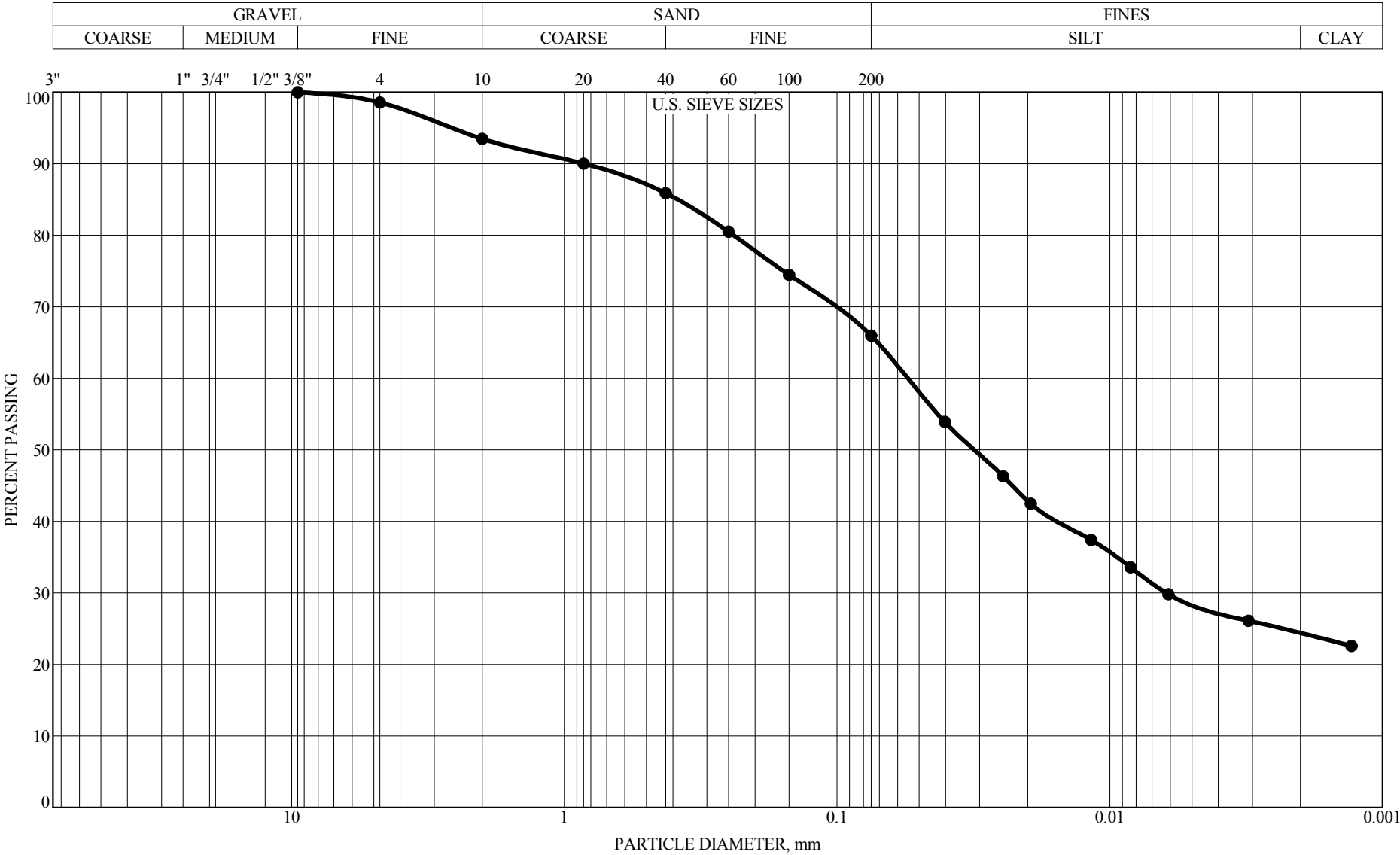


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-23 DEPTH: 1.0'-10.0'

GRAVEL 18.3%
SAND 26.5%
SILT 37.0%
CLAY 18.2%

CLASSIFICATION:
A-6 (7), brown
SANDY LEAN CLAY(CL)
LL=34, PL=15, PI=19, P200=55.2%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



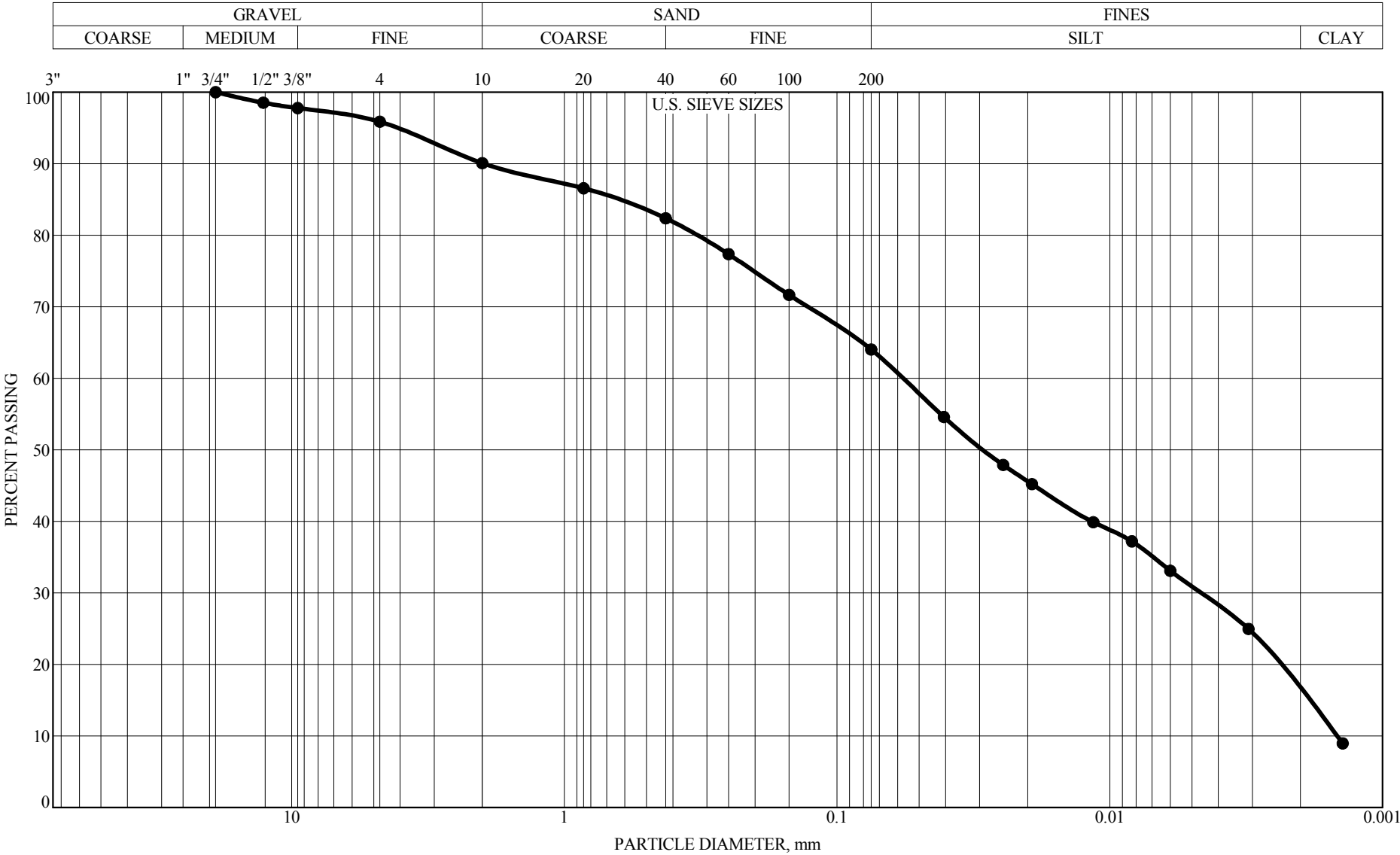
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-24 DEPTH: 0.9'-10.0'

GRAVEL 6.5%
SAND 27.5%
SILT 41.6%
CLAY 24.3%

CLASSIFICATION:
A-6 (13), brown
SANDY LEAN CLAY(CL)

LL=38, PL=14, PI=24, P200=65.9%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

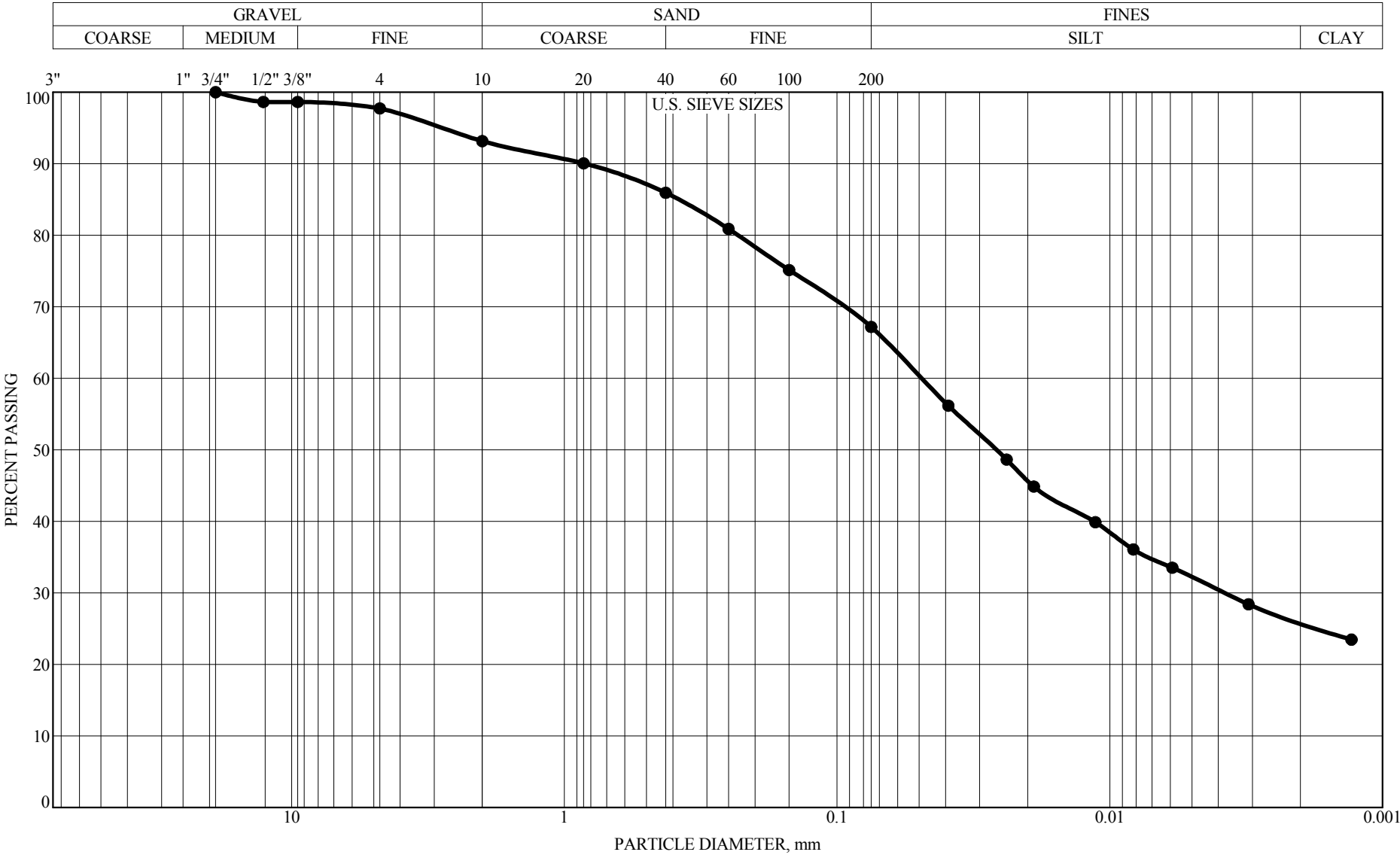


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-25 DEPTH: 0.9'-10.0'

GRAVEL 9.9%
SAND 26.0%
SILT 47.9%
CLAY 16.1%

CLASSIFICATION:
A-6 (11), brown
SANDY LEAN CLAY(CL)
LL=38, PL=16, PI=22, P200=64.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

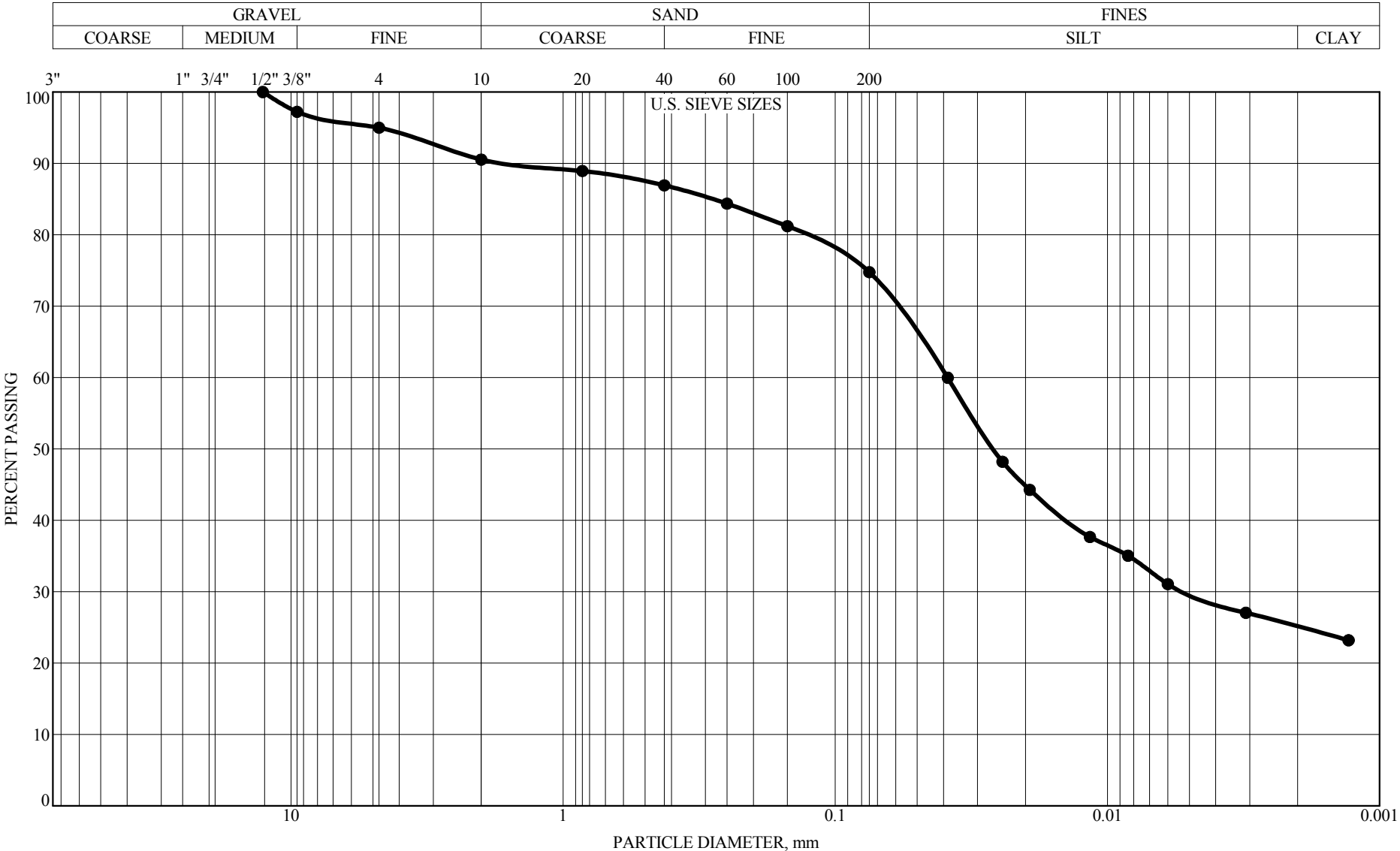


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-26 DEPTH: 0.9'-10.0'

GRAVEL 6.8%
SAND 26.0%
SILT 41.3%
CLAY 25.9%

CLASSIFICATION:
A-6 (14), brown
SANDY LEAN CLAY(CL)
LL=39, PL=15, PI=24, P200=67.2%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

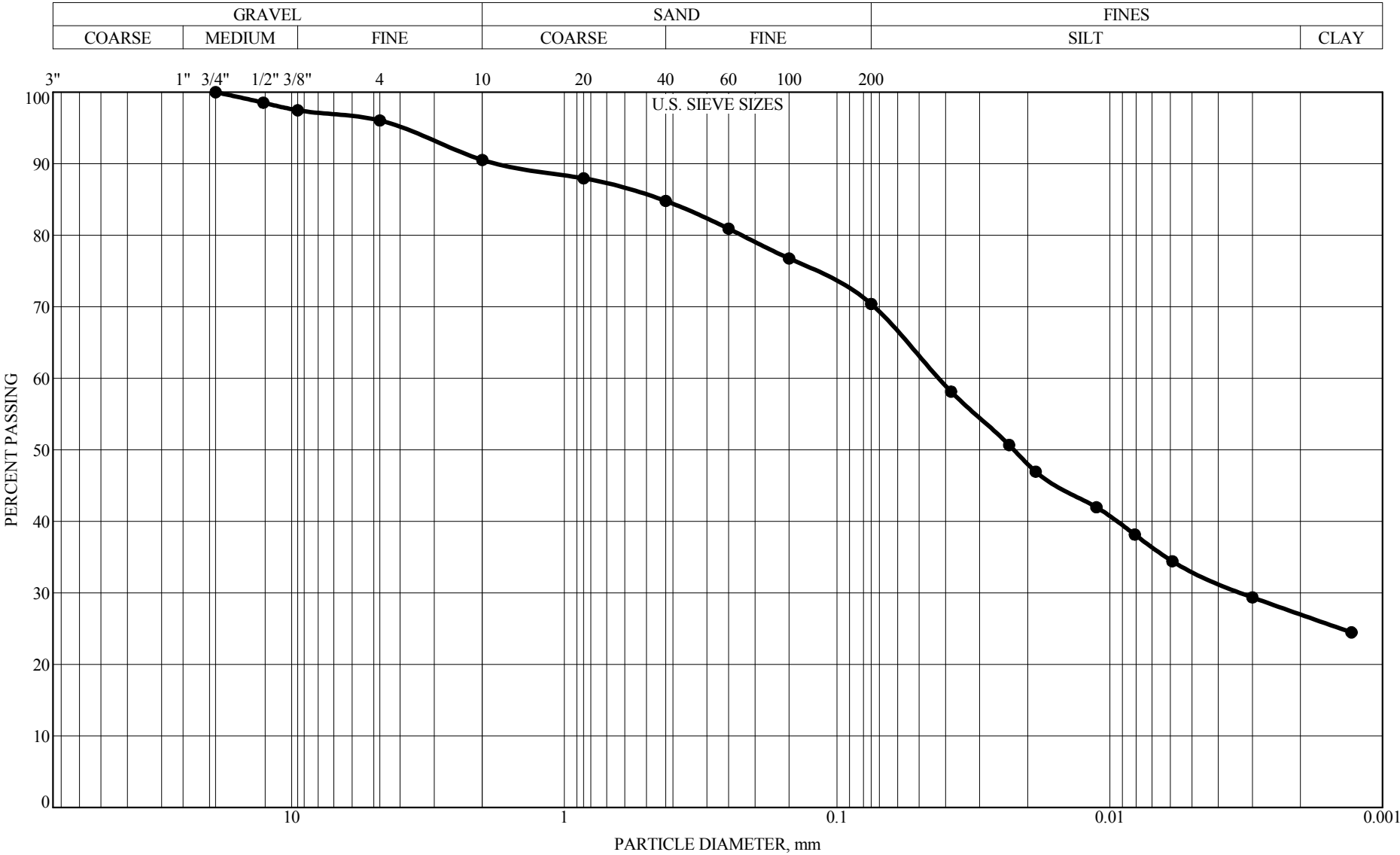


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-27 DEPTH: 0.9'-10.0'

GRAVEL 9.5%
SAND 15.8%
SILT 49.7%
CLAY 25.1%

CLASSIFICATION:
A-6 (15), brown
LEAN CLAY with SAND(CL)
LL=38, PL=16, PI=22, P200=74.8%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

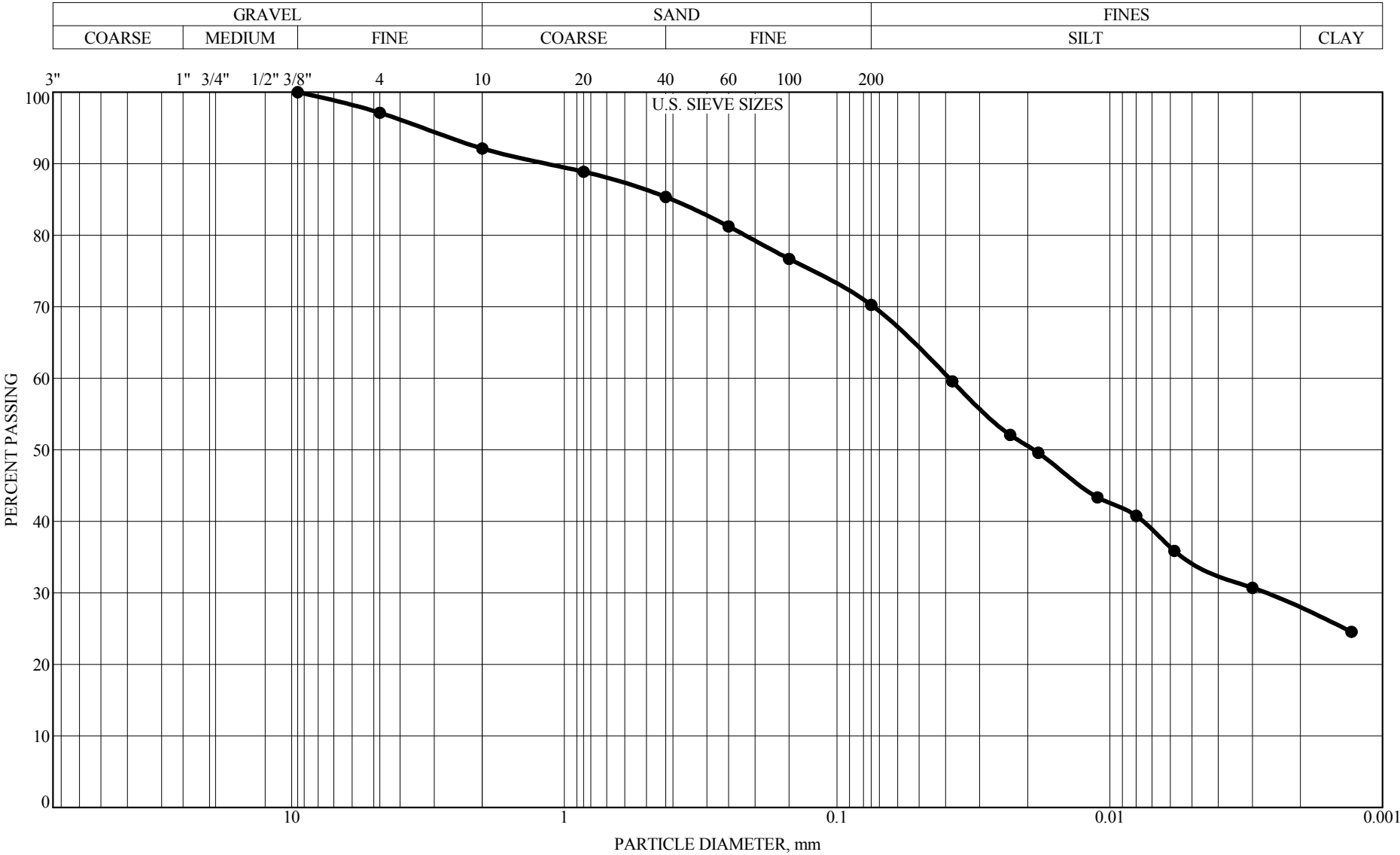


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-28 DEPTH: 0.9'-10.0'

GRAVEL 9.5%
SAND 20.1%
SILT 43.4%
CLAY 27.0%

CLASSIFICATION:
A-6 (15), brown
LEAN CLAY with SAND(CL)
LL=39, PL=15, PI=24, P200=70.4%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

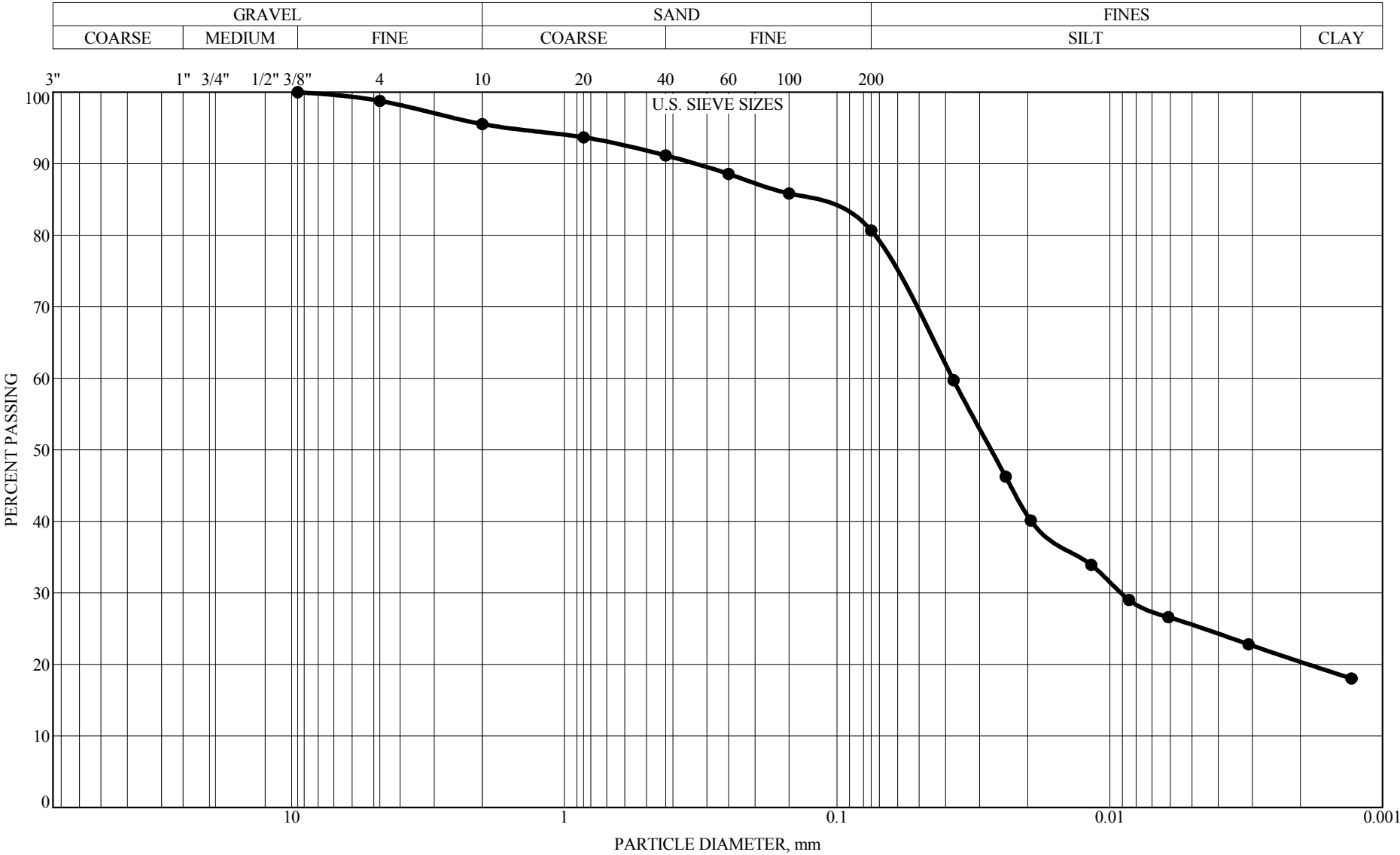


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-29 DEPTH: 0.9'-10.0'

GRAVEL 7.9%
SAND 21.9%
SILT 42.5%
CLAY 27.7%

CLASSIFICATION:
A-6 (15), brown
LEAN CLAY with SAND(CL)
LL=40, PL=16, PI=24, P200=70.2%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

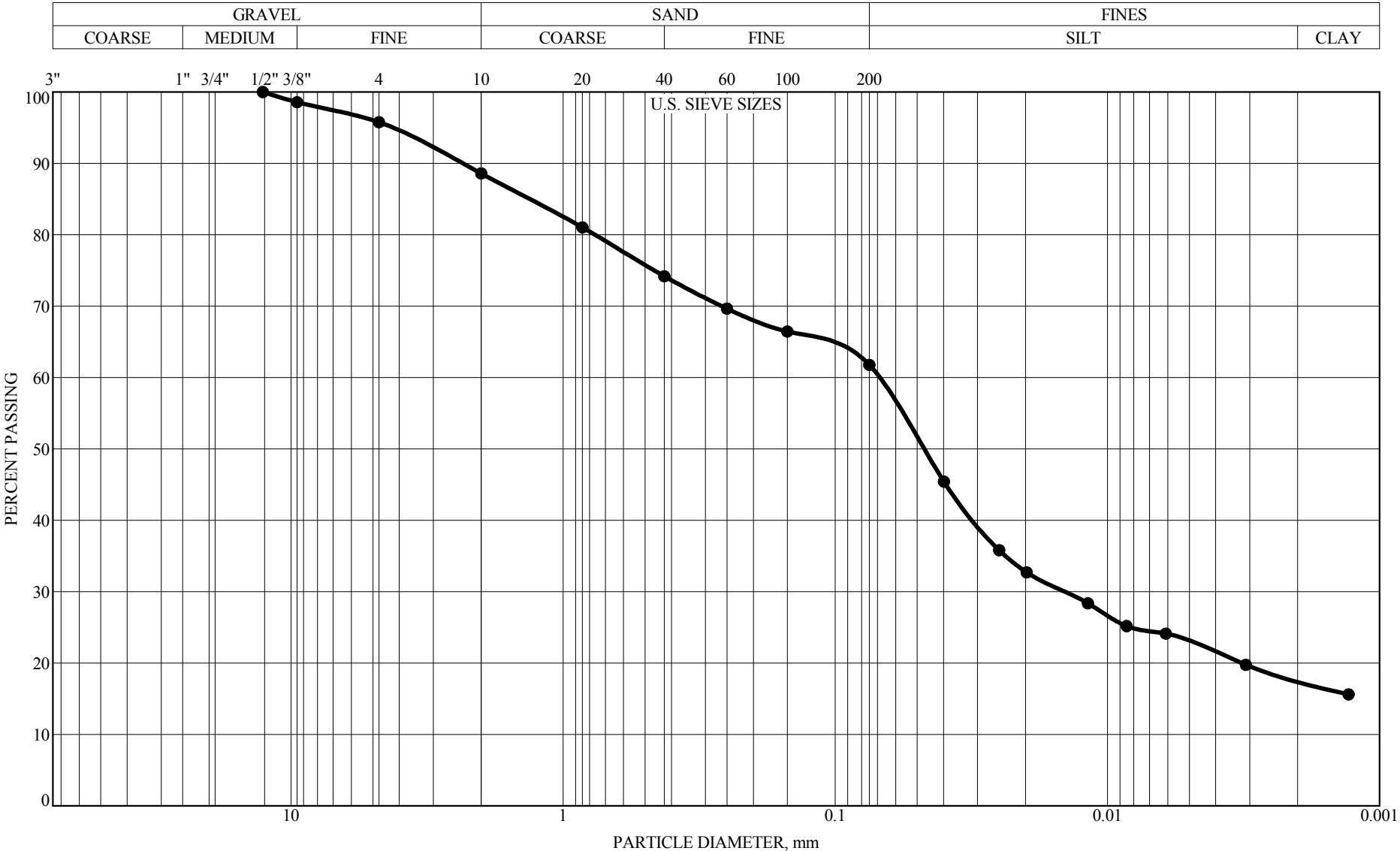


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-30 DEPTH: 0.9'-10.0'

GRAVEL 4.5%
SAND 14.9%
SILT 60.3%
CLAY 20.4%

CLASSIFICATION:
A-6 (15), brown
LEAN CLAY with SAND(CL)
LL=39, PL=20, PI=19, P200=80.7%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

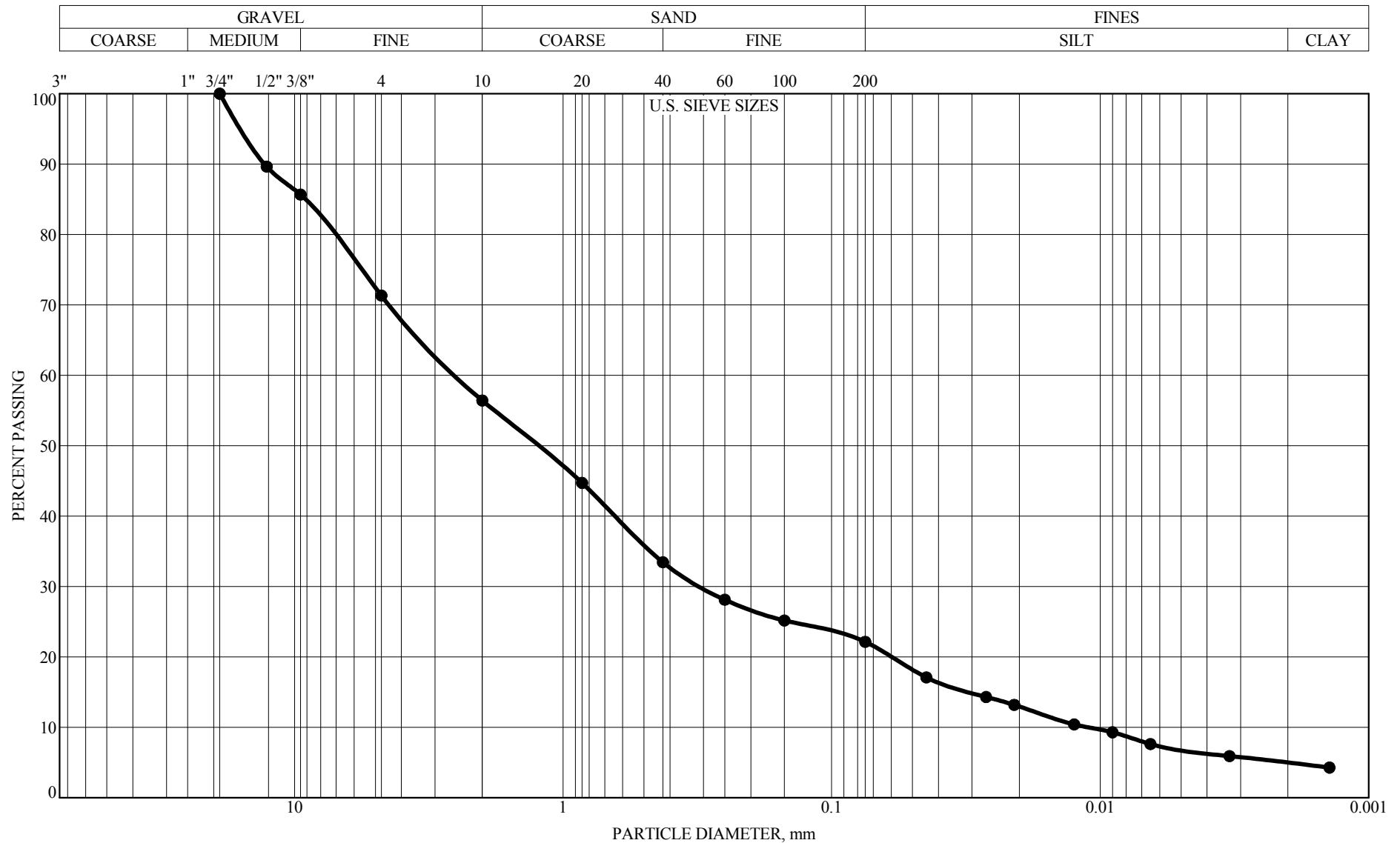


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-31 DEPTH: 0.9'-4.0'

GRAVEL 11.4%
SAND 26.8%
SILT 44.1%
CLAY 17.7%

CLASSIFICATION:
A-6 (8), brown
SANDY LEAN CLAY(CL)
LL=35, PL=18, PI=17, P200=61.8%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUNSM
INTERTEC

Braun Project BM-13-05525

Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota

BORING: LSS-31 DEPTH: 4.0'-10.0'

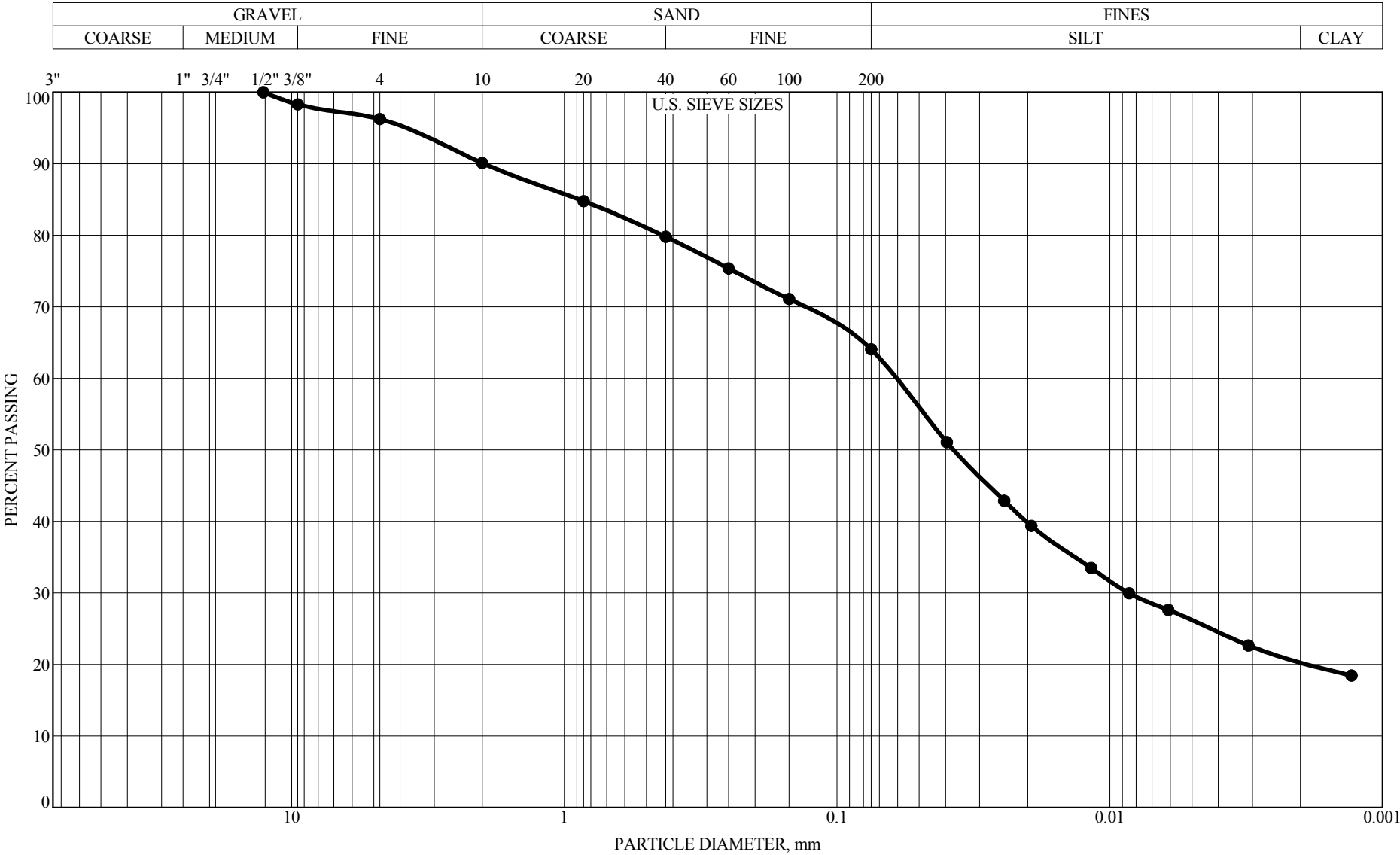
GRAVEL	43.6%
SAND	34.3%
SILT	17.2%
CLAY	5.0%

CLASSIFICATION:

A-2-4 (0), brown
CLAYEY SAND with GRAVEL(SC)

LL=25, PL=16, PI=9, P200=22.2%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

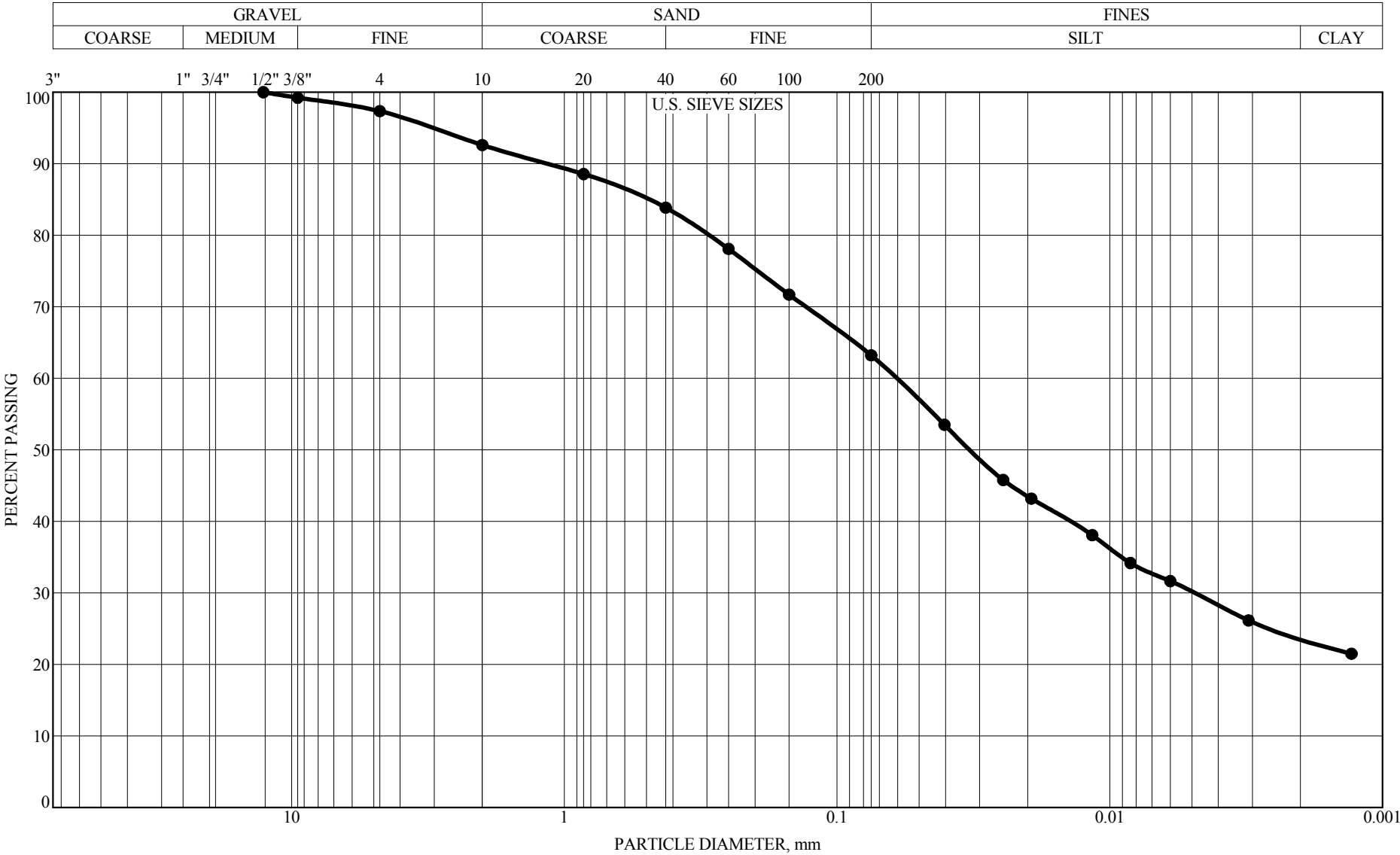


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-32 DEPTH: 0.9'-7.0'

GRAVEL 9.9%
SAND 26.1%
SILT 43.5%
CLAY 20.5%

CLASSIFICATION:
A-6 (10), brown
SANDY LEAN CLAY(CL)
LL=36, PL=16, PI=20, P200=64.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

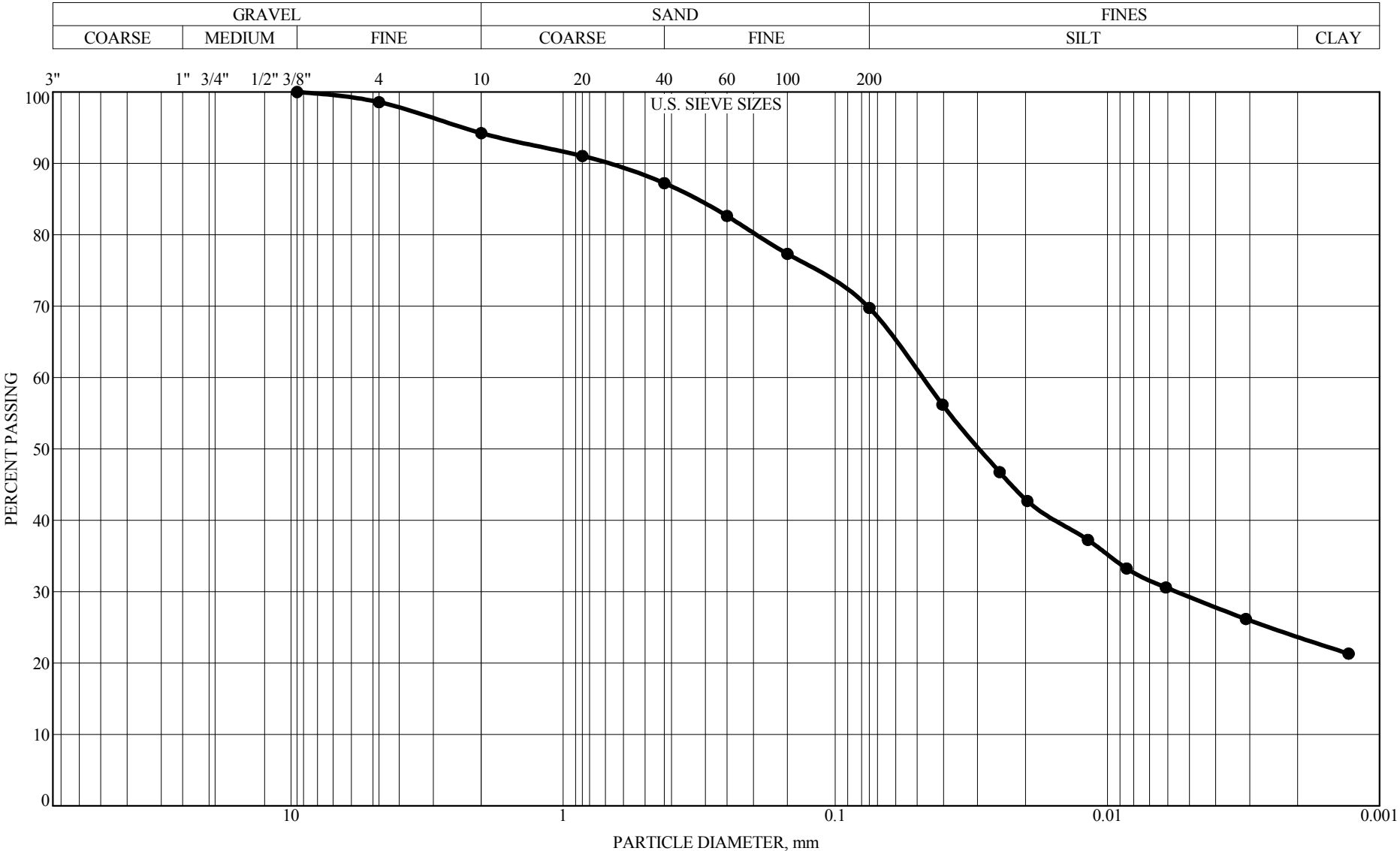


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-33 DEPTH: 1.0'-10.0'

GRAVEL 7.4%
SAND 29.4%
SILT 39.4%
CLAY 23.8%

CLASSIFICATION:
A-6 (11), brown
SANDY LEAN CLAY(CL)
LL=37, PL=14, PI=23, P200=63.2%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

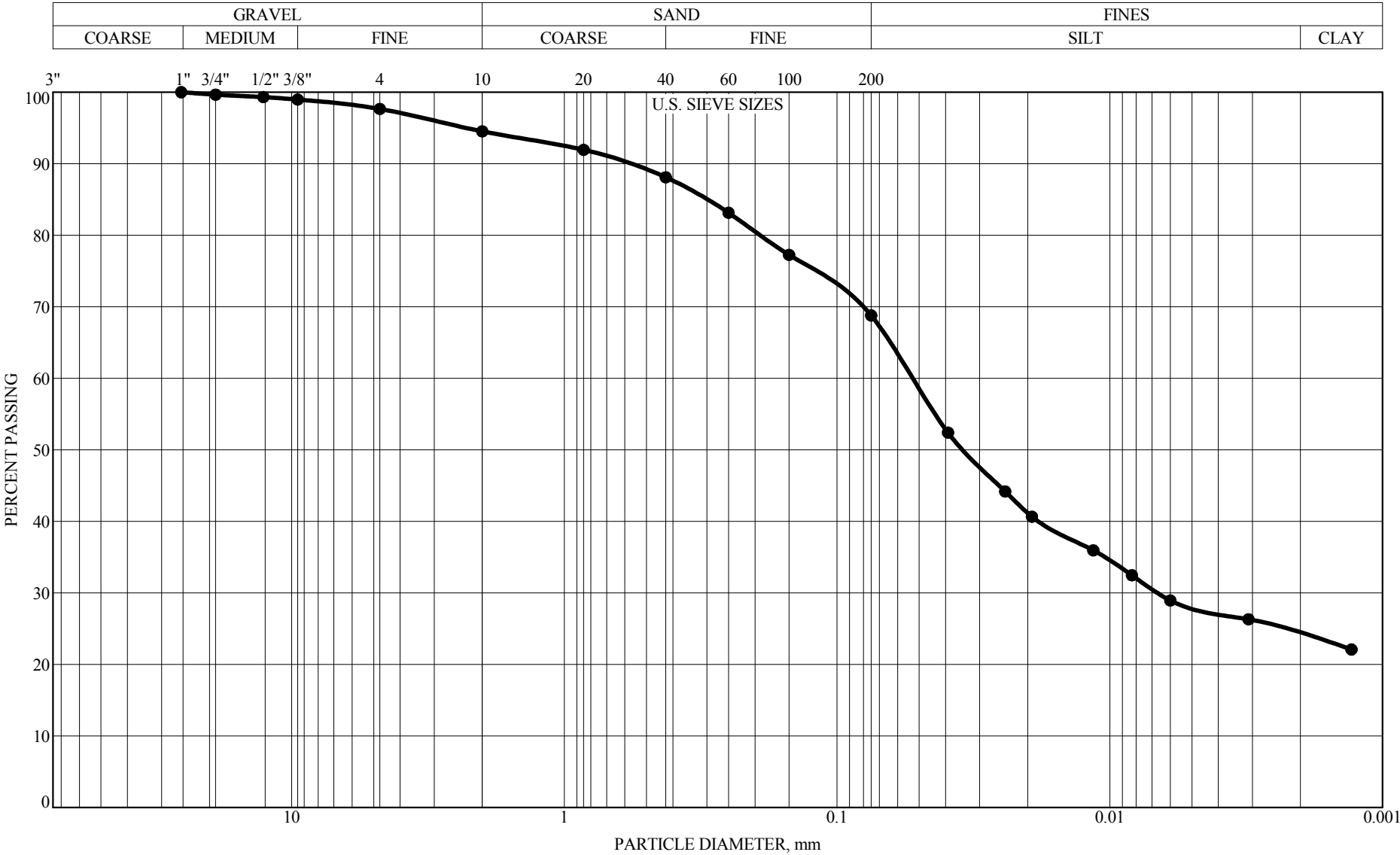


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-34 DEPTH: 0.9'-10.0'

GRAVEL 5.8%
SAND 24.5%
SILT 46.0%
CLAY 23.7%

CLASSIFICATION:
A-6 (13), brown
SANDY LEAN CLAY(CL)
LL=39, PL=17, PI=22, P200=69.7%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

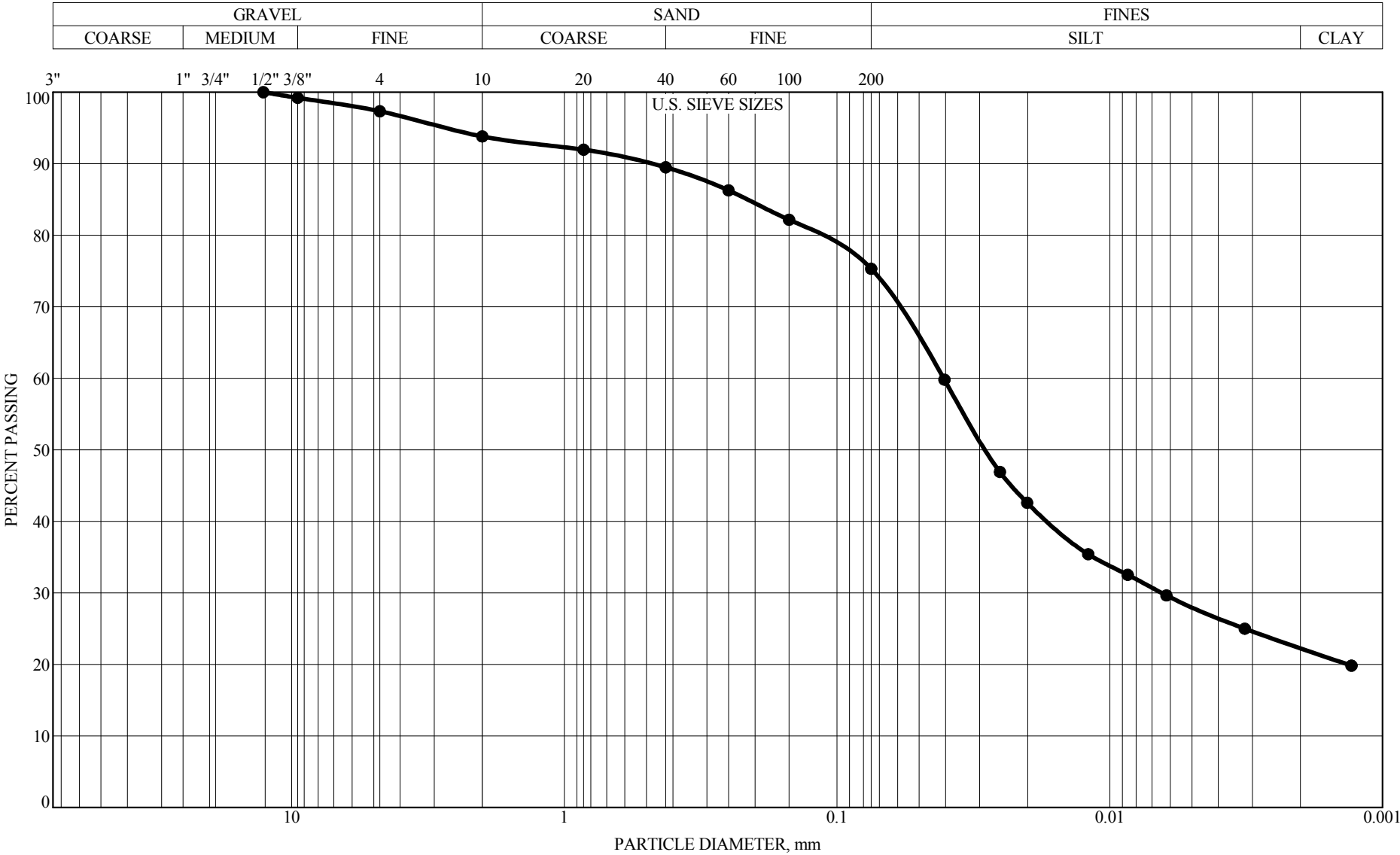


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-35 DEPTH: 0.9'-10.0'

GRAVEL 5.5%
SAND 25.7%
SILT 44.6%
CLAY 24.2%

CLASSIFICATION:
A-6 (14), brown
SANDY LEAN CLAY(CL)
LL=39, PL=15, PI=24, P200=68.8%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

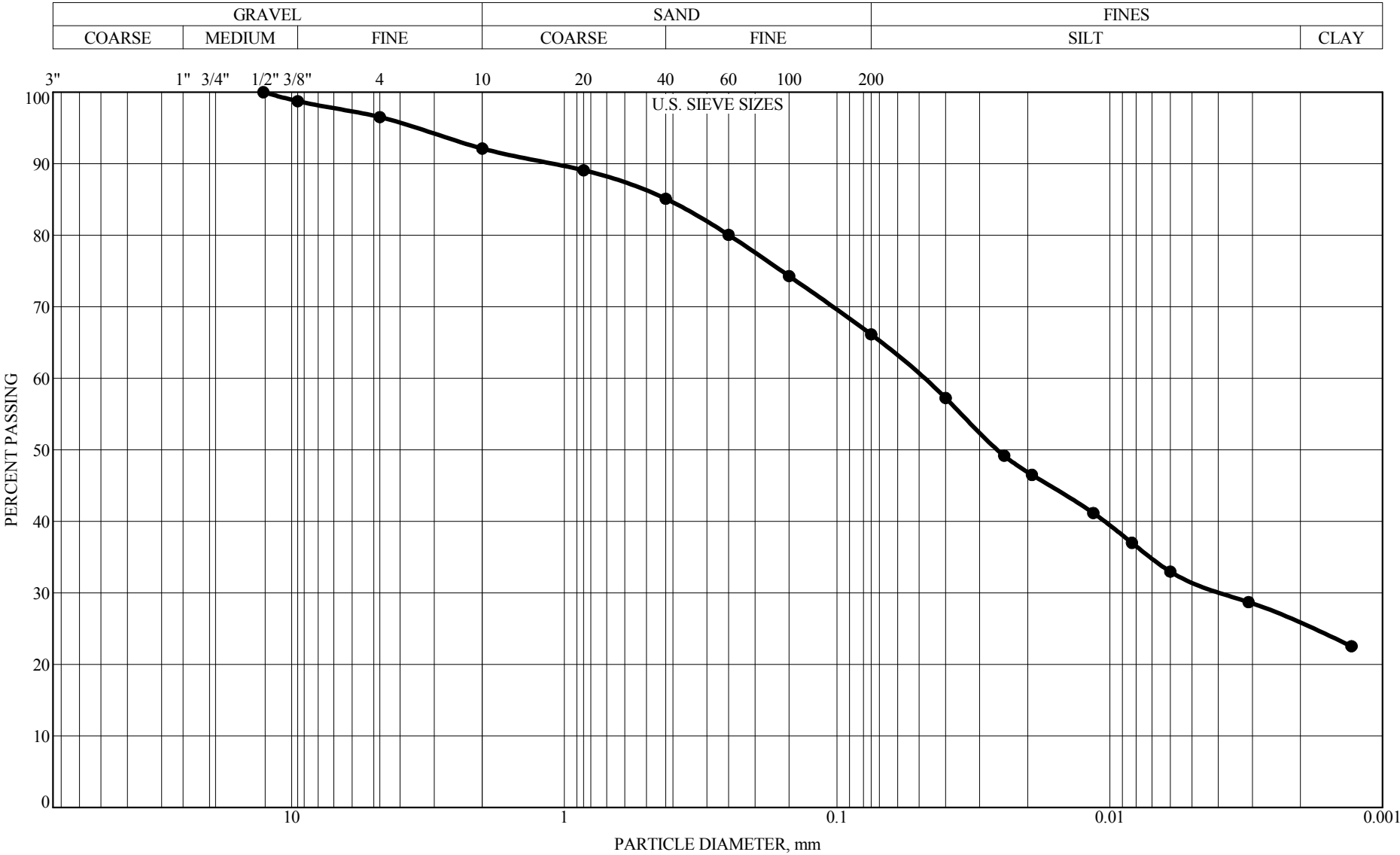


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-36 DEPTH: 0.9'-10.0'

GRAVEL 6.2%
SAND 18.5%
SILT 53.0%
CLAY 22.3%

CLASSIFICATION:
A-6 (16), brown
LEAN CLAY with SAND(CL)
LL=40, PL=17, PI=23, P200=75.3%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



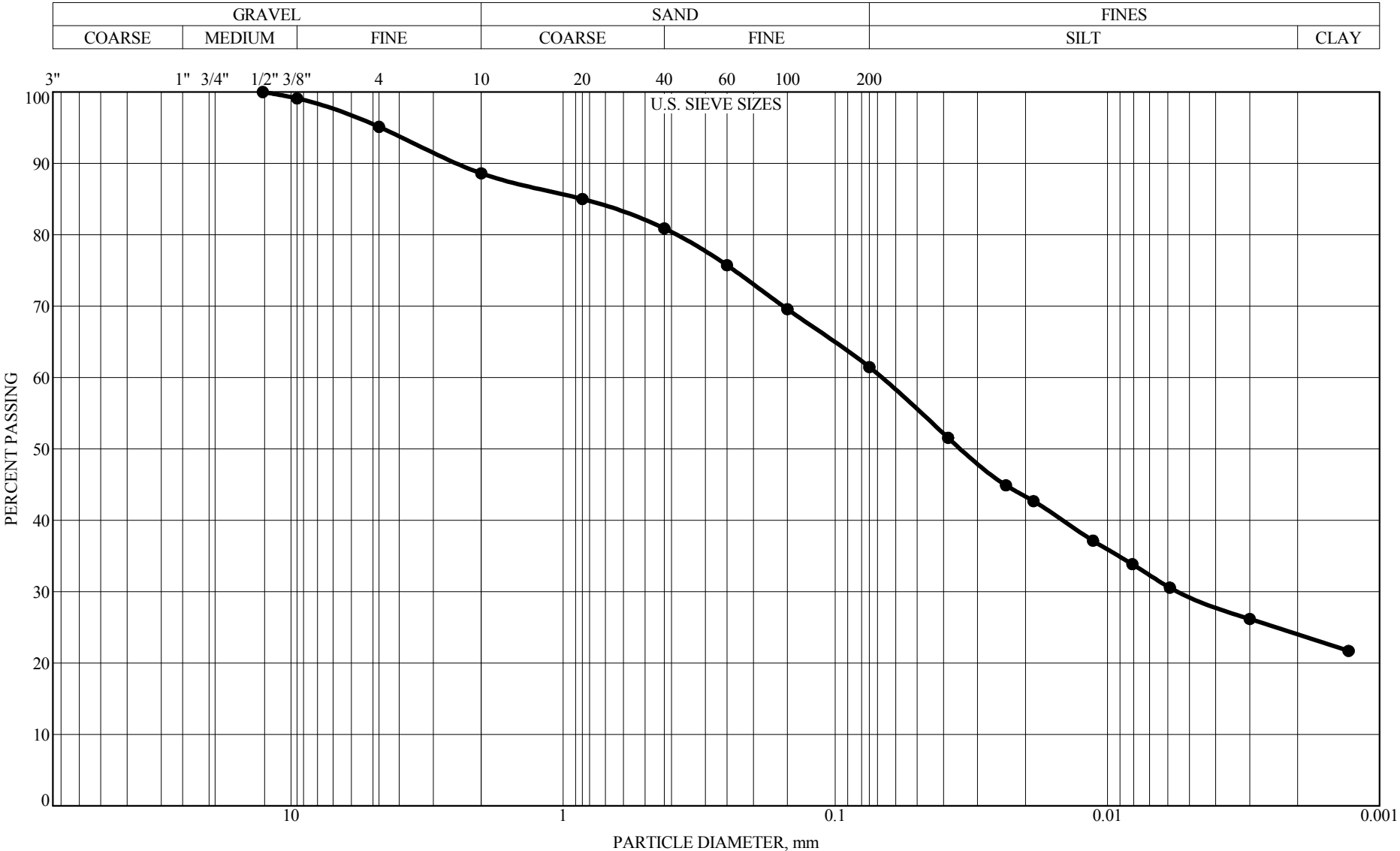
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-37 DEPTH: 1.0'-10.0'

GRAVEL 7.9%
SAND 26.0%
SILT 40.5%
CLAY 25.6%

CLASSIFICATION:
A-7-6 (15), brown
SANDY LEAN CLAY(CL)

LL=42, PL=15, PI=27, P200=66.1%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

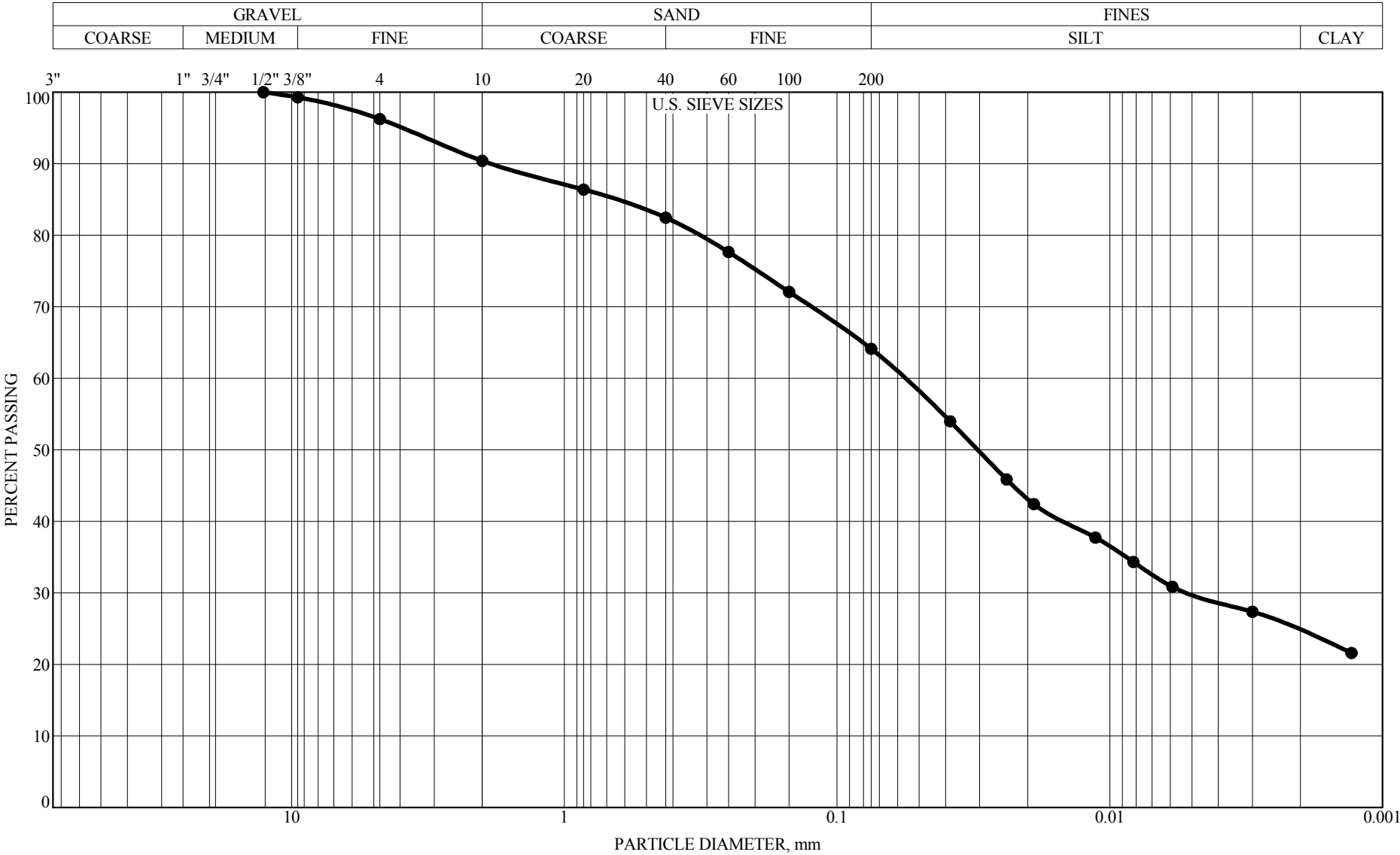


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-38 DEPTH: 0.9'-10.0'

GRAVEL 11.4%
SAND 27.1%
SILT 37.5%
CLAY 24.0%

CLASSIFICATION:
A-6 (11), brown
SANDY LEAN CLAY(CL)
LL=38, PL=15, PI=23, P200=61.5%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



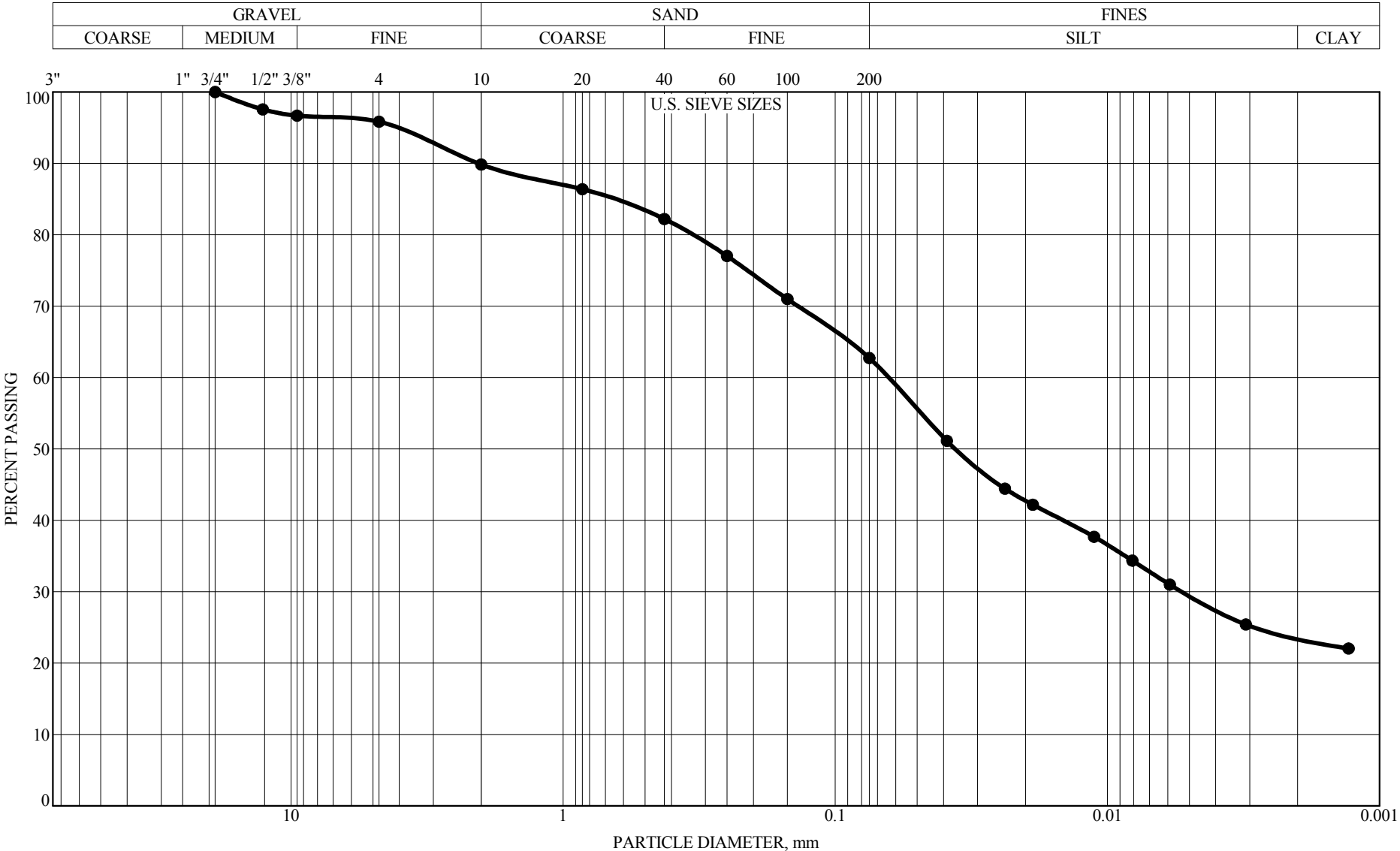
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-39 DEPTH: 0.9'-10.0'

GRAVEL 9.6%
SAND 26.3%
SILT 39.5%
CLAY 24.6%

CLASSIFICATION:
A-7-6 (13), brown
SANDY LEAN CLAY(CL)

LL=41, PL=16, PI=25, P200=64.1%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

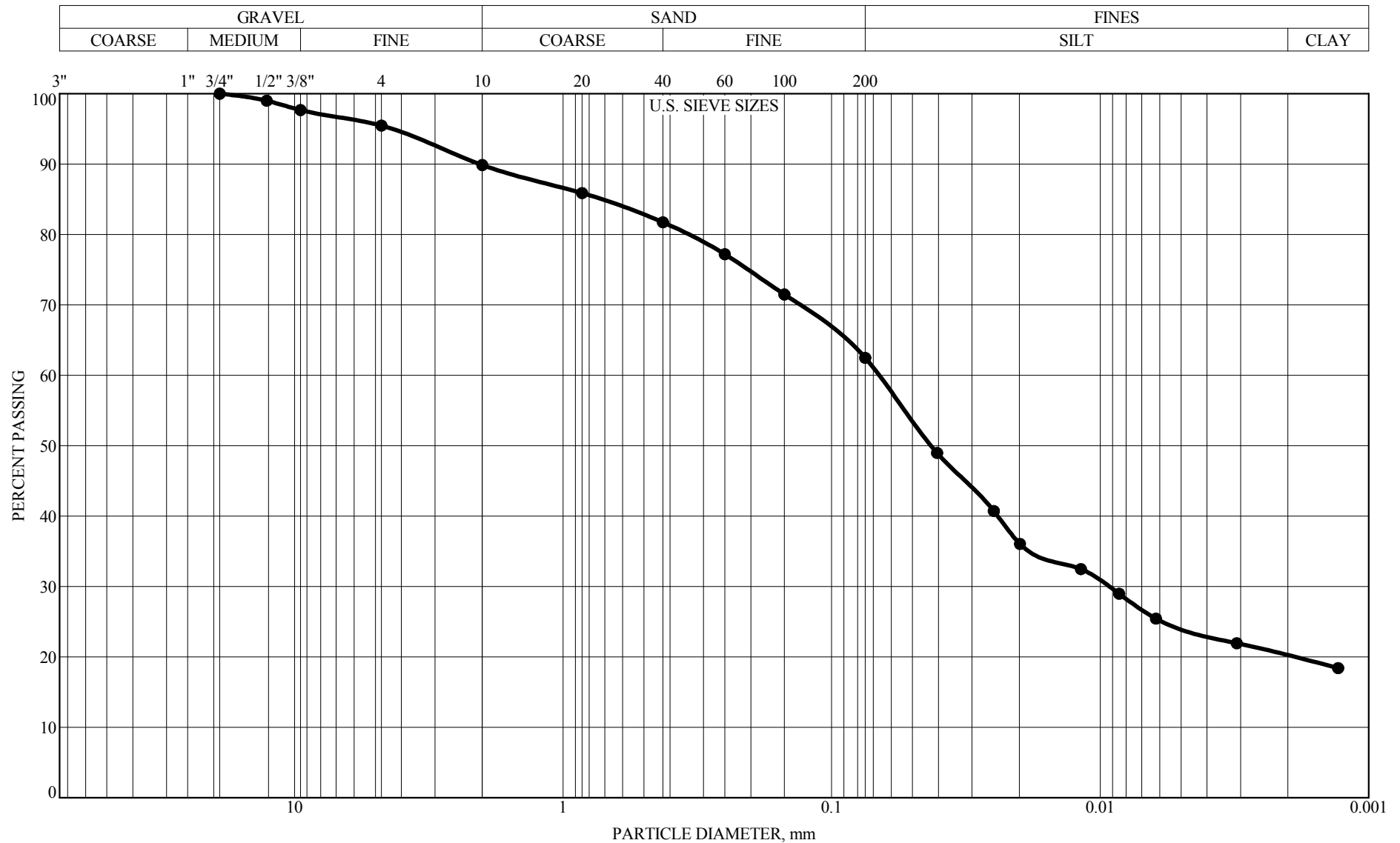


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-40 DEPTH: 0.9'-10.0'

GRAVEL 10.2%
SAND 27.1%
SILT 39.0%
CLAY 23.7%

CLASSIFICATION:
A-6 (12), brown
SANDY LEAN CLAY(CL)
LL=38, PL=14, PI=24, P200=62.7%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



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Braun Project BM-13-05525

**Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota**

BORING: LSS-41 DEPTH: 0.9'-10.0'

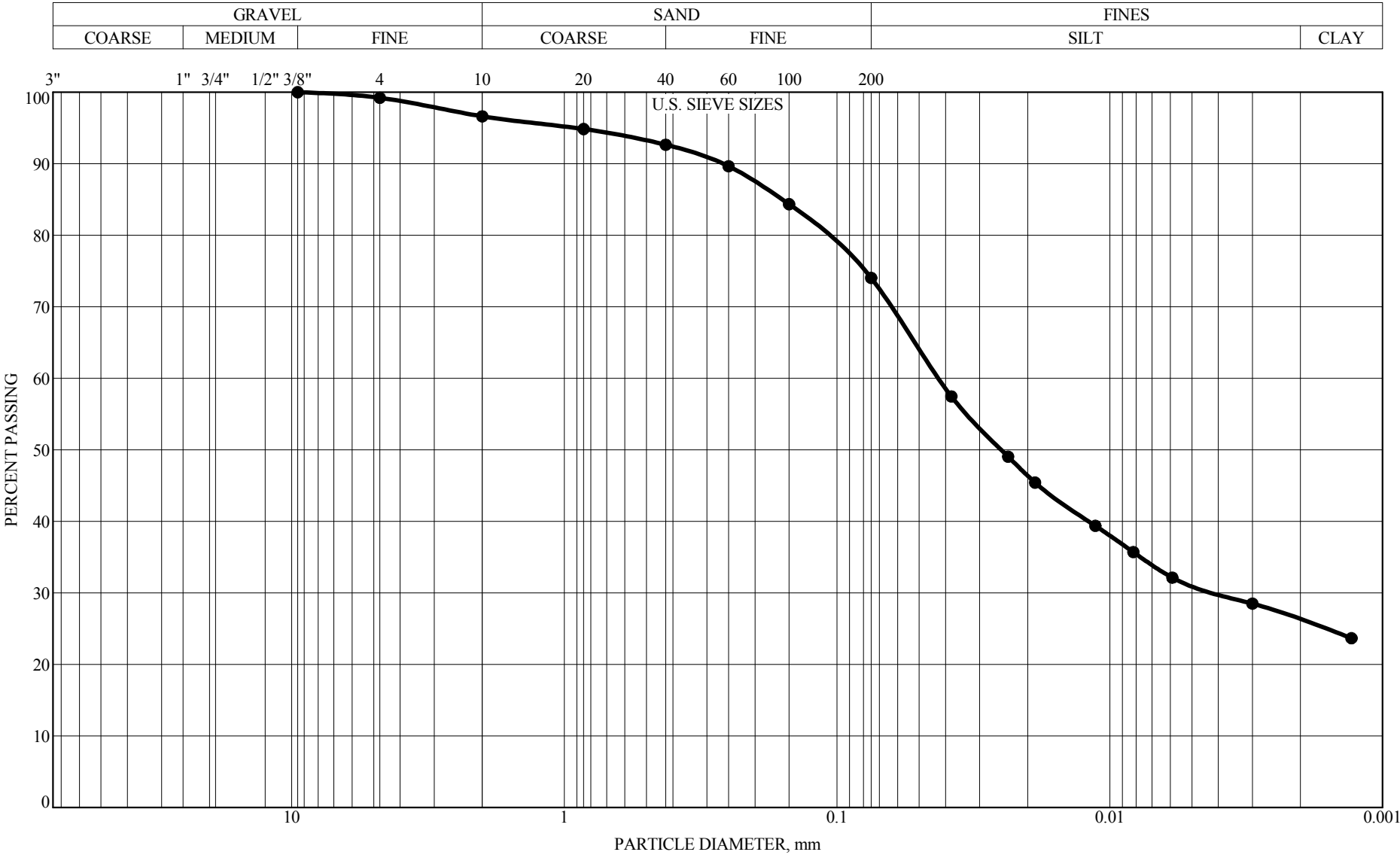
GRAVEL	10.1%
SAND	27.4%
SILT	42.3%
CLAY	20.2%

CLASSIFICATION:

A-6 (10), brown
SANDY LEAN CLAY(CL)

LL=37, PL=16, PI=21, P200=62.5%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

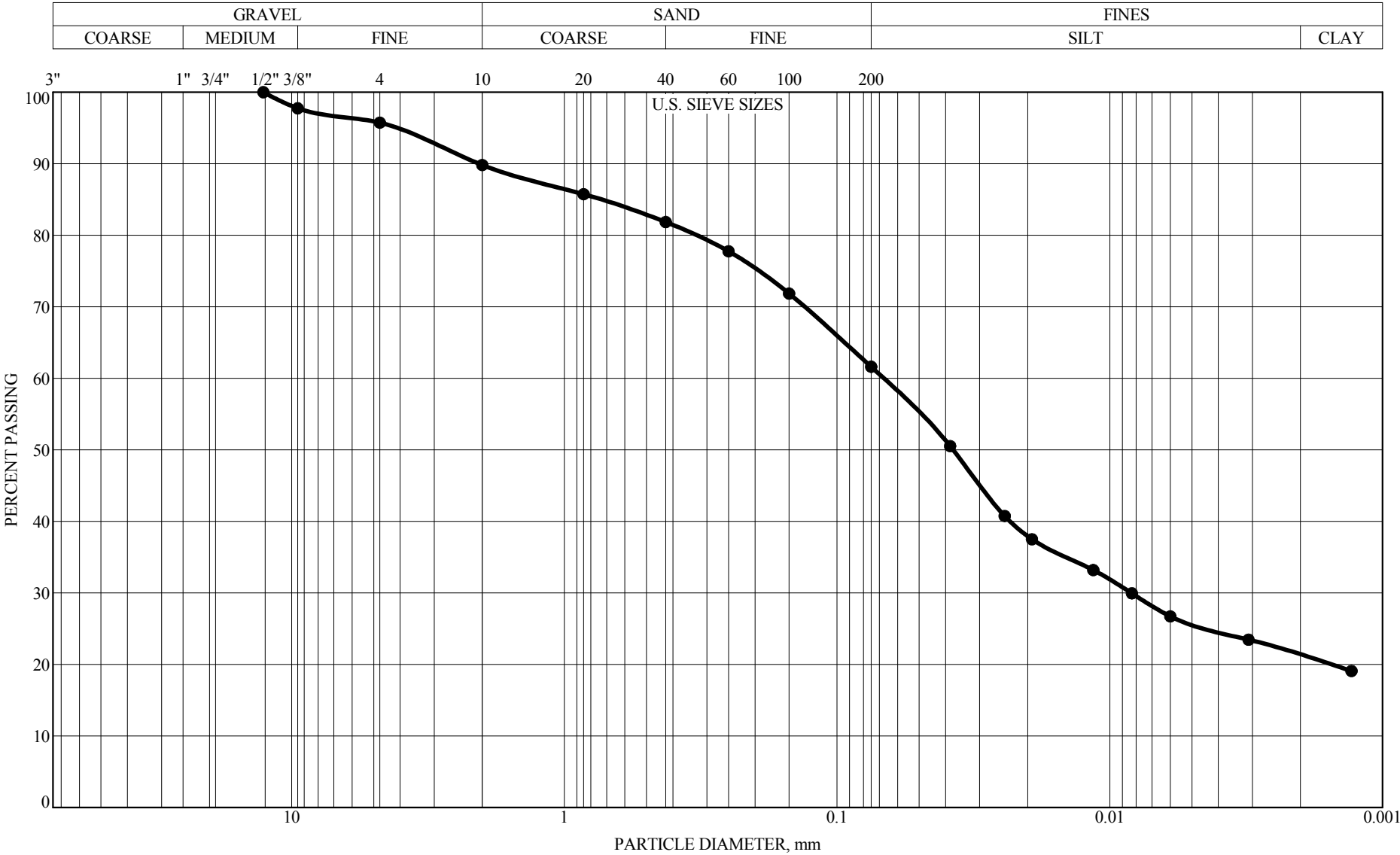


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-42 DEPTH: 0.9'-10.0'

GRAVEL 3.4%
SAND 22.6%
SILT 47.9%
CLAY 26.2%

CLASSIFICATION:
A-6 (15), brown
LEAN CLAY with SAND(CL)
LL=40, PL=17, PI=23, P200=74.1%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

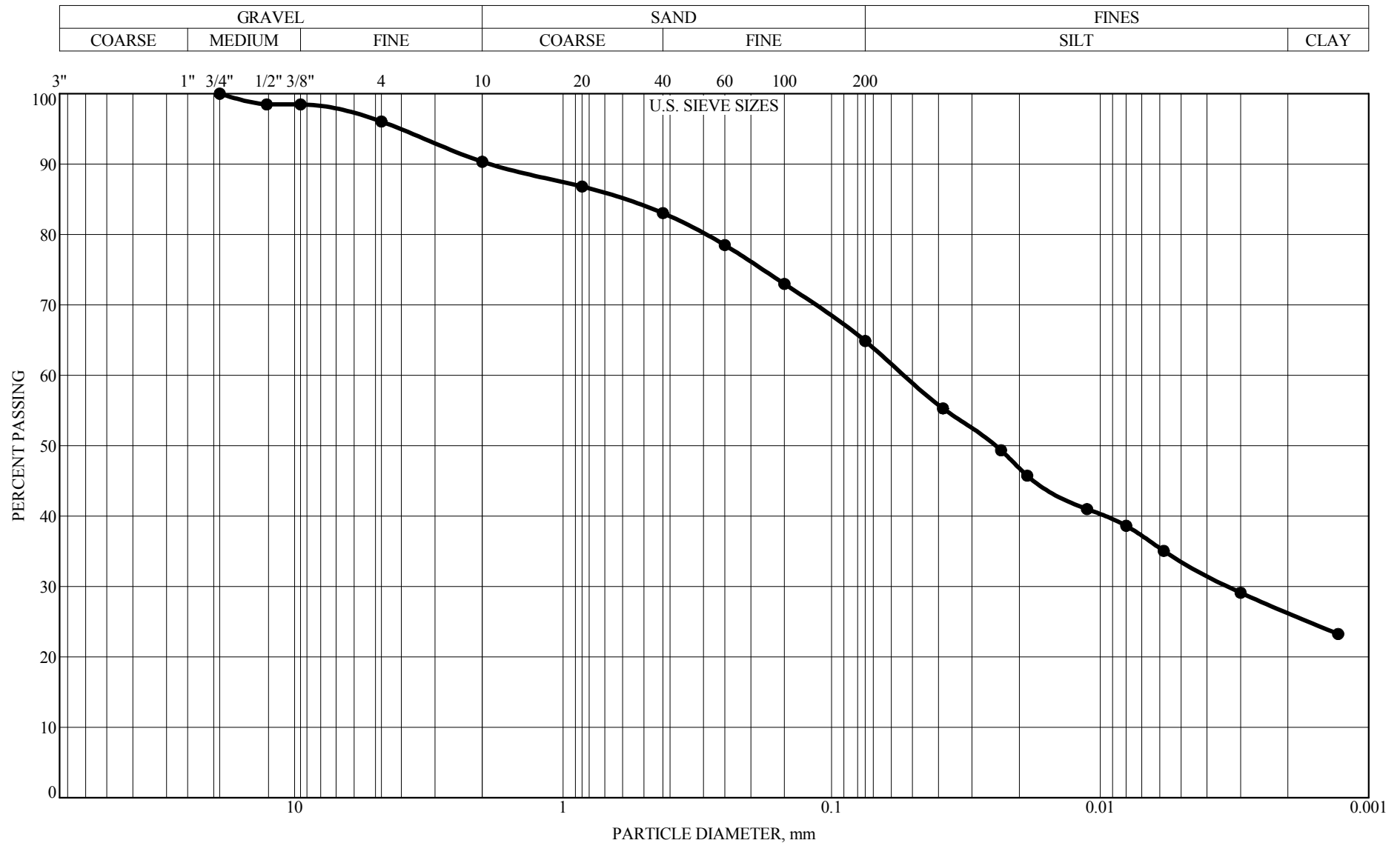


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-43 DEPTH: 0.9'-10.0'

GRAVEL 10.2%
SAND 28.2%
SILT 40.4%
CLAY 21.3%

CLASSIFICATION:
A-6 (10), brown
SANDY LEAN CLAY(CL)
LL=37, PL=16, PI=21, P200=61.7%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUNSM
INTERTEC

Braun Project BM-13-05525

**Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota**

BORING: LSS-44 DEPTH: 1.0'-10.0'

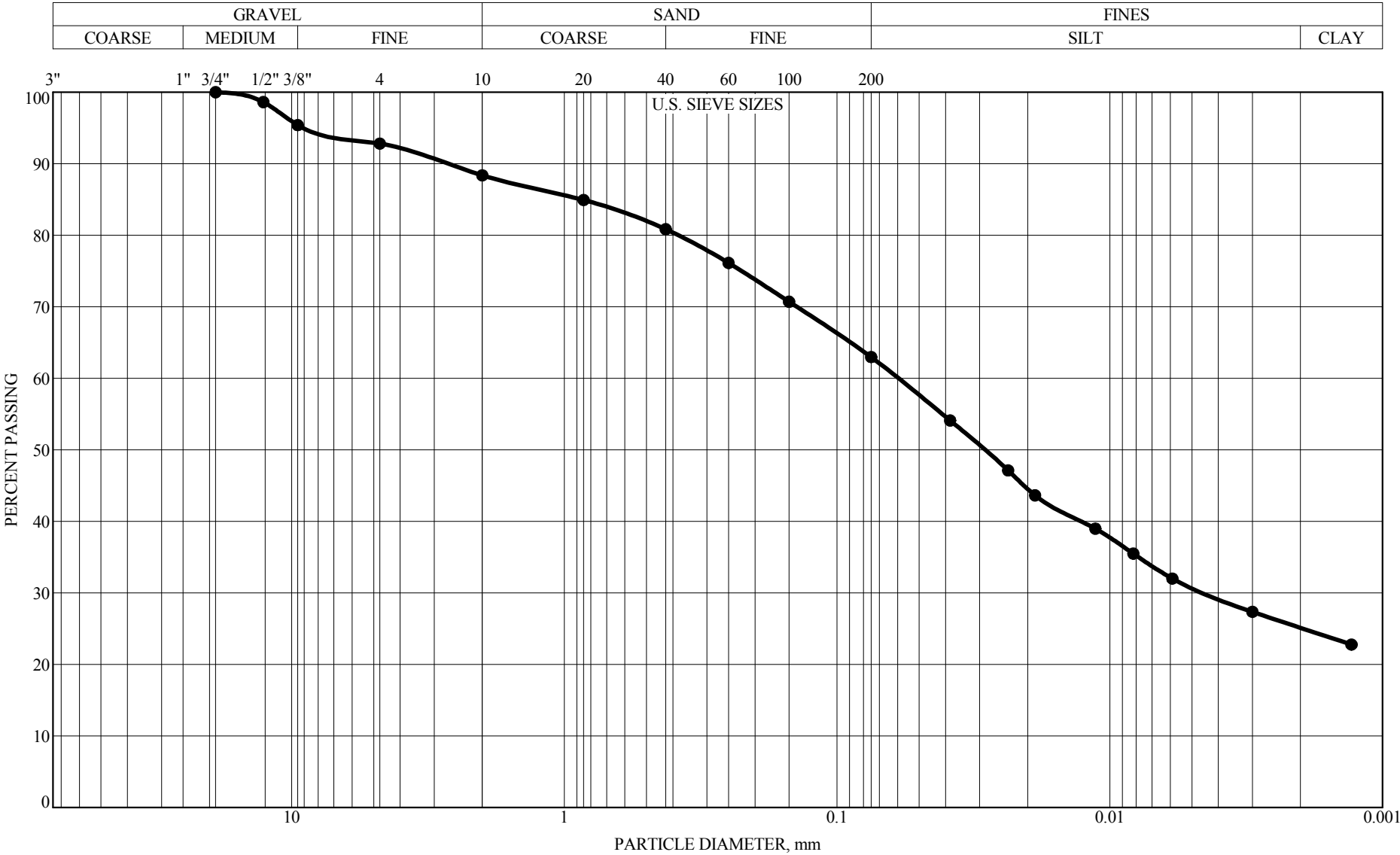
GRAVEL	9.7%
SAND	25.5%
SILT	38.6%
CLAY	26.3%

CLASSIFICATION:

A-7-6 (15), brown
SANDY LEAN CLAY(CL)

LL=43, PL=16, PI=27, P200=64.9%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



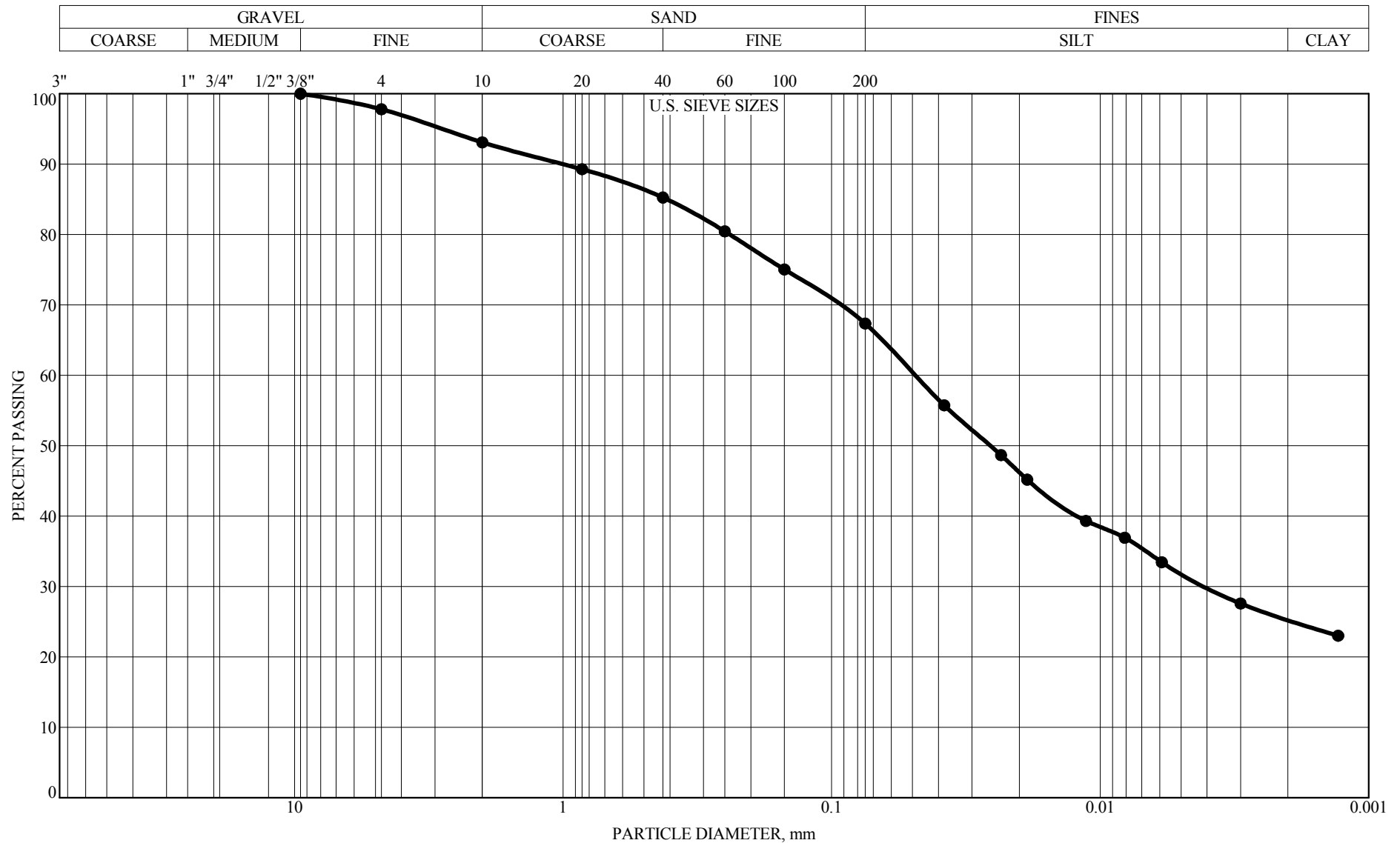
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-45 DEPTH: 1.0'-10.0'

GRAVEL 11.6%
SAND 25.4%
SILT 37.8%
CLAY 25.1%

CLASSIFICATION:
A-6 (13), brown
SANDY LEAN CLAY(CL)

LL=40, PL=15, PI=25, P200=62.9%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



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INTERTEC

Braun Project BM-13-05525

Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota

BORING: LSS-46 DEPTH: 1.0'-10.0'

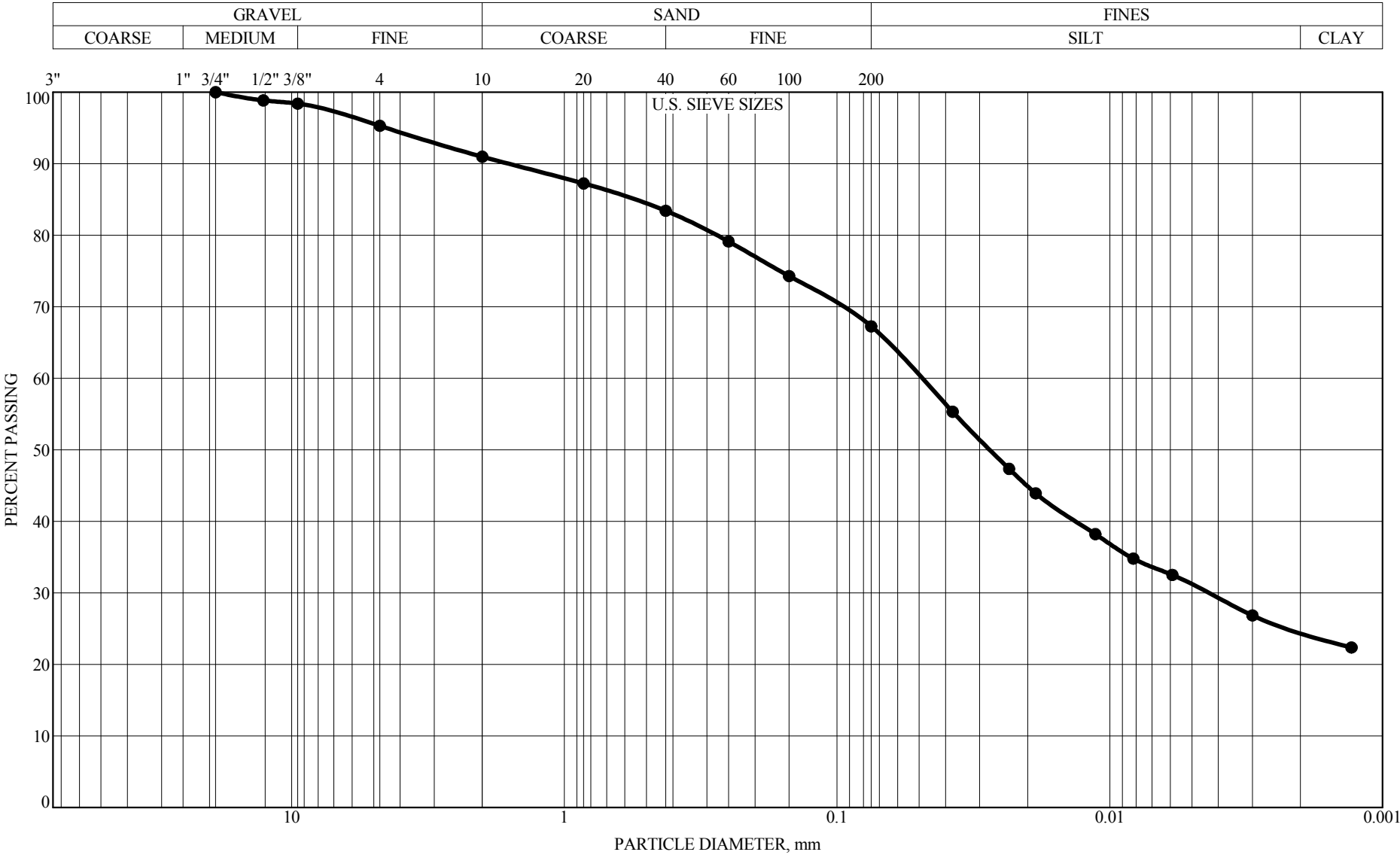
GRAVEL	6.9%
SAND	25.7%
SILT	42.0%
CLAY	25.4%

CLASSIFICATION:

A-6 (13), brown
SANDY LEAN CLAY(CL)

LL=38, PL=15, PI=23, P200=67.4%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

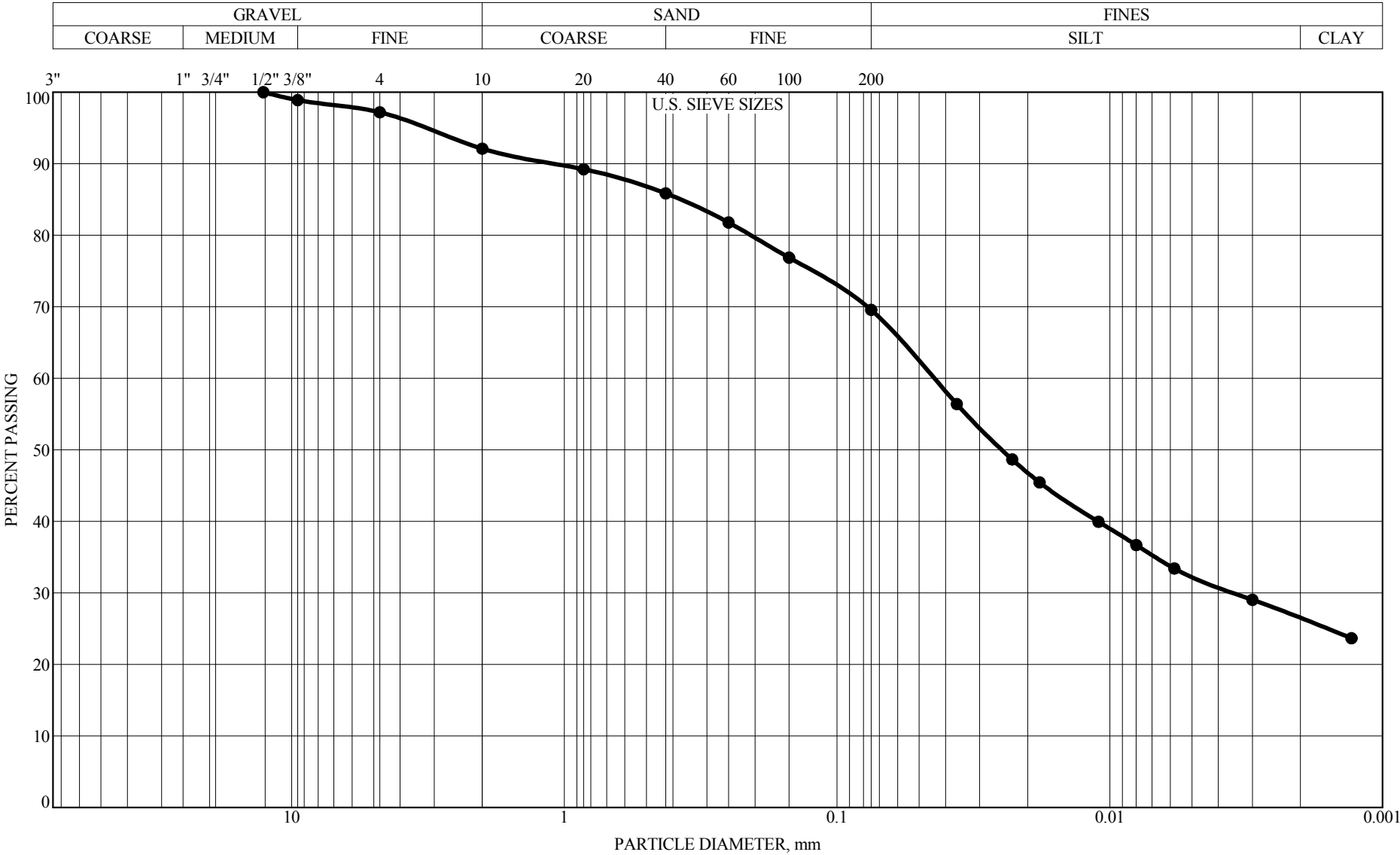


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-47 DEPTH: 1.1'-8.0'

GRAVEL 9.0%
SAND 23.7%
SILT 42.6%
CLAY 24.7%

CLASSIFICATION:
A-7-6 (14), brown
SANDY LEAN CLAY(CL)
LL=41, PL=16, PI=25, P200=67.3%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



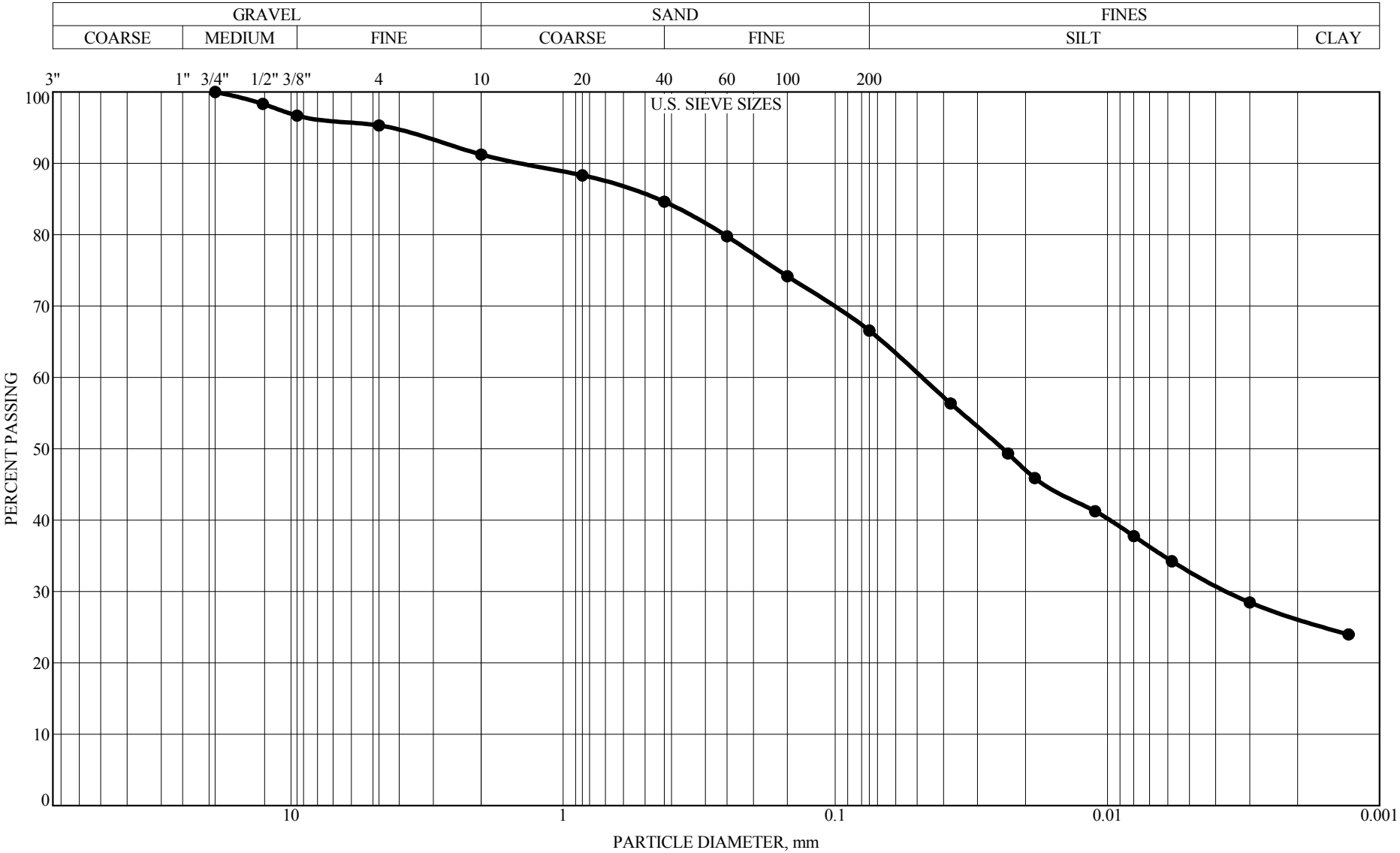
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-48 DEPTH: 0.9'-10.0'

GRAVEL 7.9%
SAND 22.5%
SILT 43.1%
CLAY 26.4%

CLASSIFICATION:
A-7-6 (16), brown
SANDY LEAN CLAY(CL)

LL=42, PL=16, PI=26, P200=69.5%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



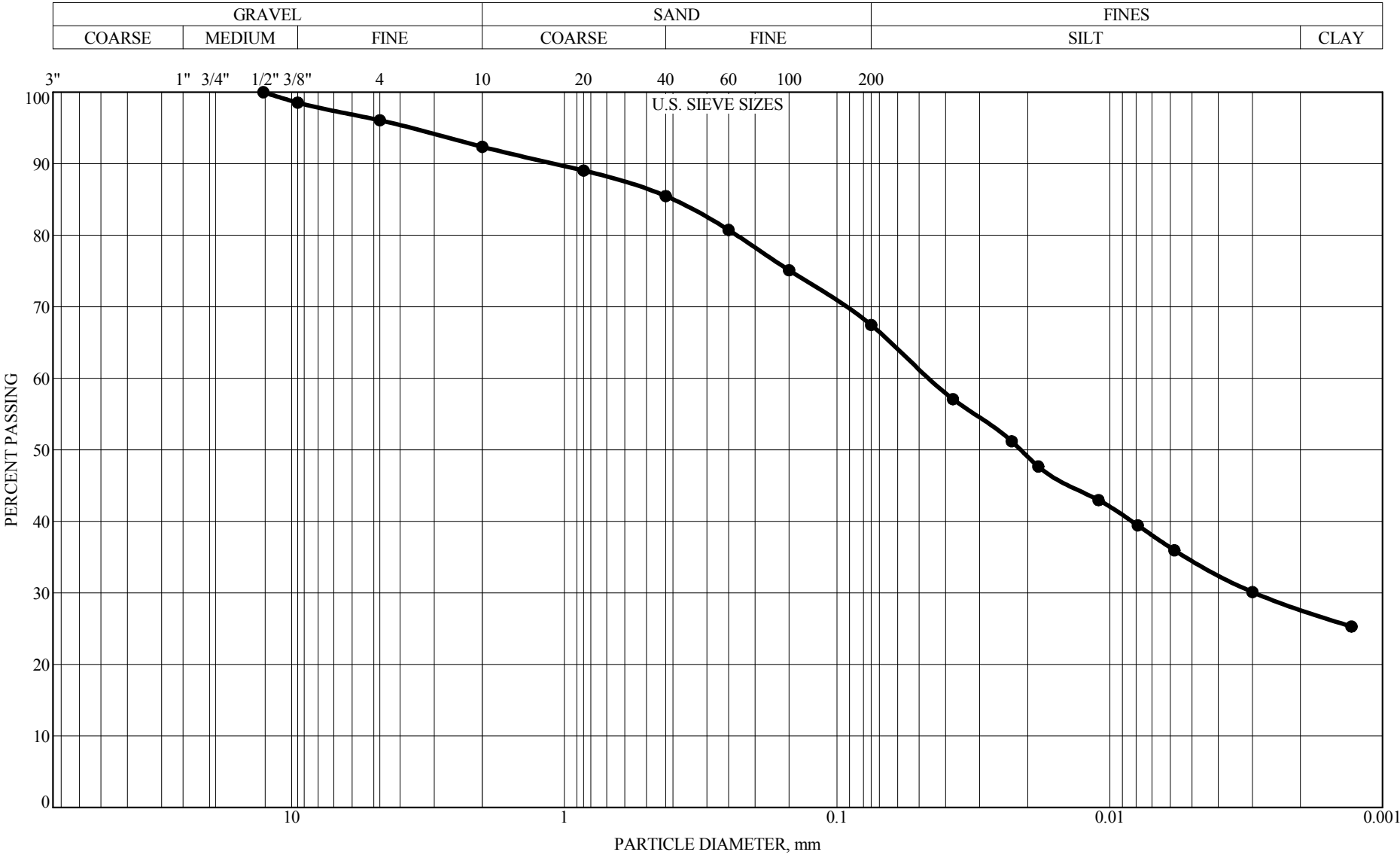
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-49 DEPTH: 1.0'-10.0'

GRAVEL 8.8%
SAND 24.7%
SILT 40.3%
CLAY 26.3%

CLASSIFICATION:
A-7-6 (16), brown
SANDY LEAN CLAY(CL)

LL=43, PL=15, PI=28, P200=66.6%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



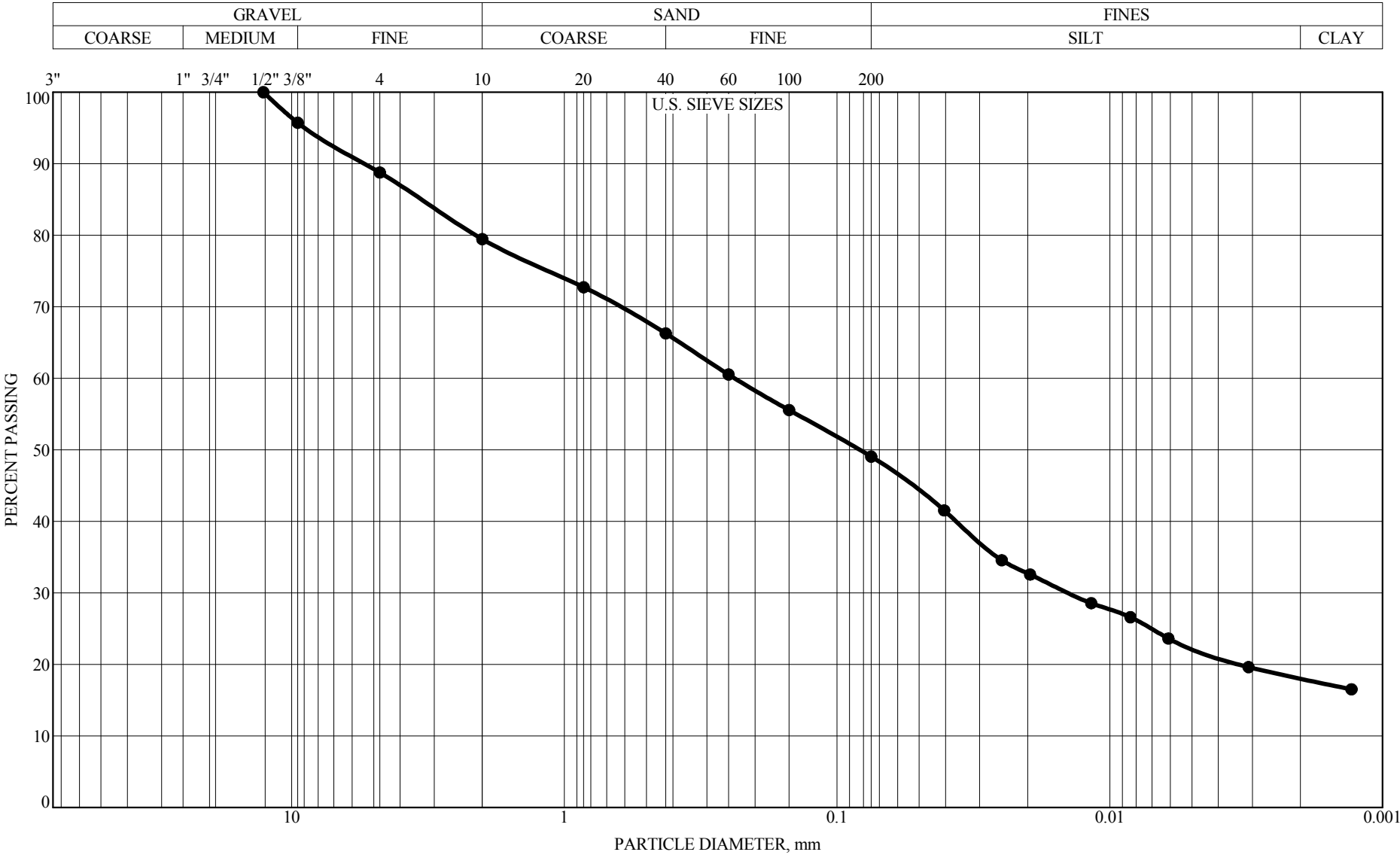
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-50 DEPTH: 1.0'-10.0'

GRAVEL 7.6%
SAND 24.9%
SILT 39.7%
CLAY 27.8%

CLASSIFICATION:
A-7-6 (16), brown
SANDY LEAN CLAY(CL)

LL=42, PL=14, PI=28, P200=67.5%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

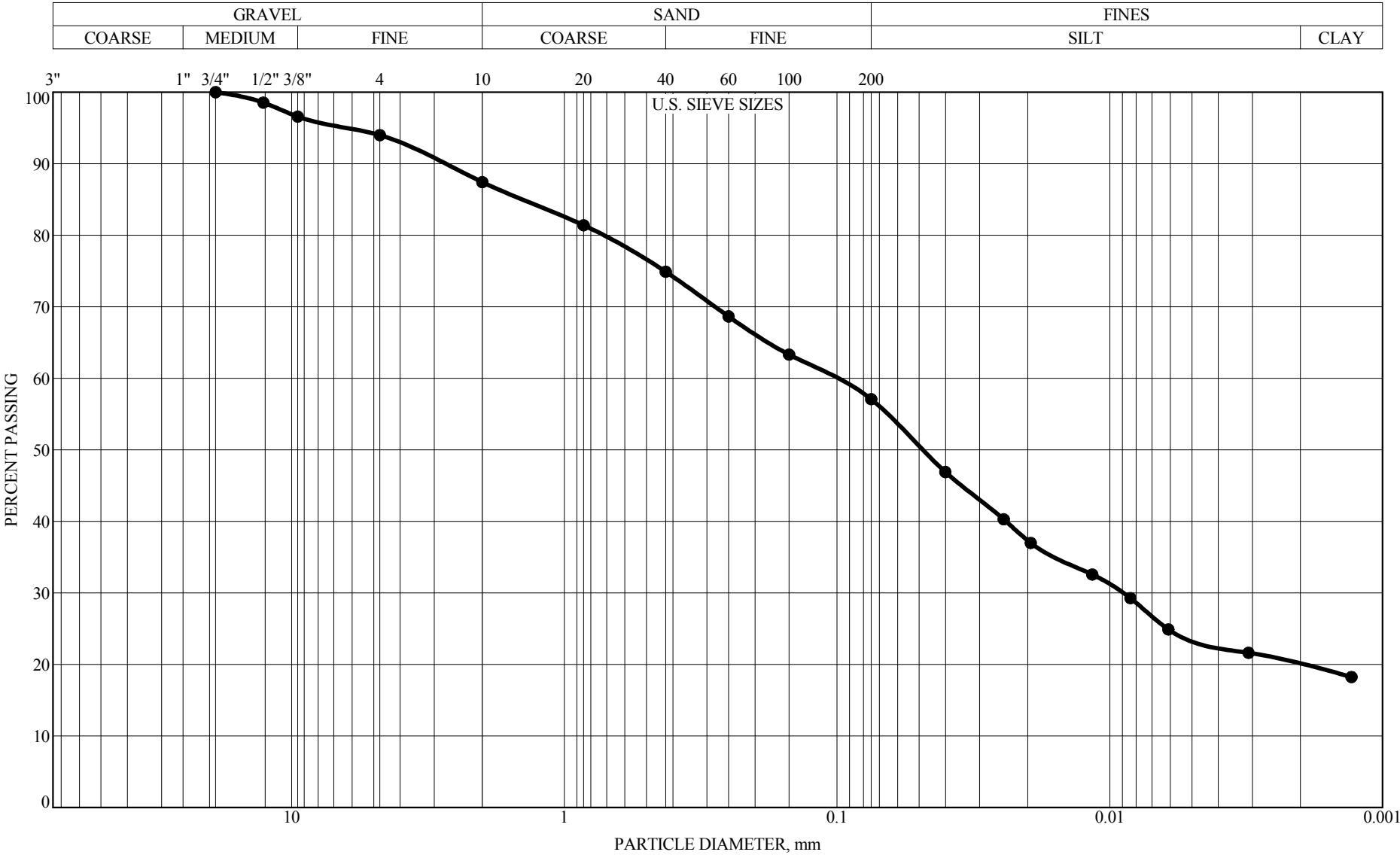


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-51 DEPTH: 1.1'-10.0'

GRAVEL 20.5%
SAND 30.4%
SILT 31.0%
CLAY 18.1%

CLASSIFICATION:
A-6 (6), brown
CLAYEY SAND(SC)
LL=38, PL=17, PI=21, P200=49.1%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



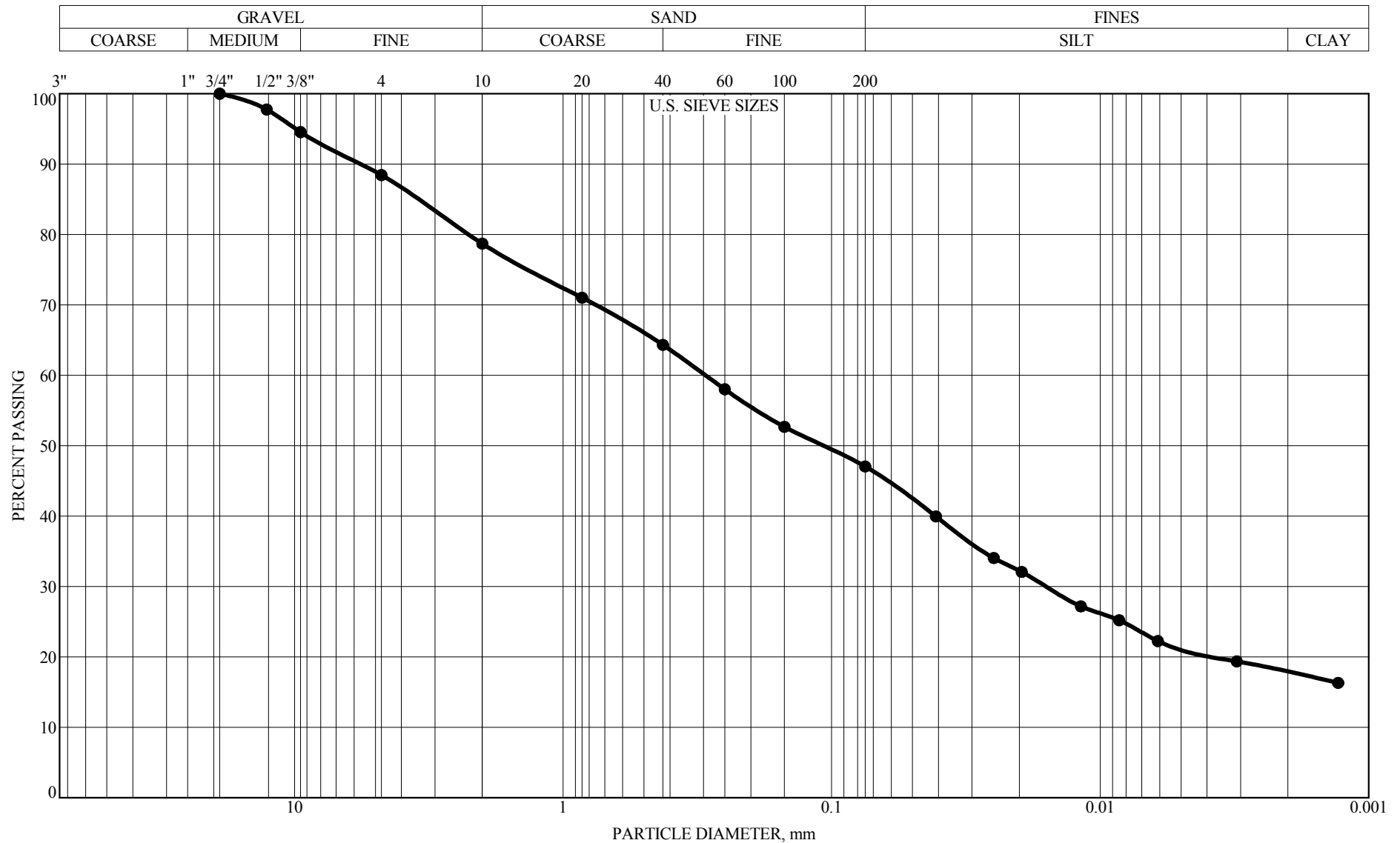
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-52 DEPTH: 1.2'-10.0'

GRAVEL 12.6%
SAND 30.3%
SILT 37.2%
CLAY 19.9%

CLASSIFICATION:
A-6 (10), brown
SANDY LEAN CLAY(CL)

LL=39, PL=16, PI=23, P200=57.1%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



Braun Project BM-13-05525

**Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota**

BORING: LSS-53 DEPTH: 1.0'-6.0'

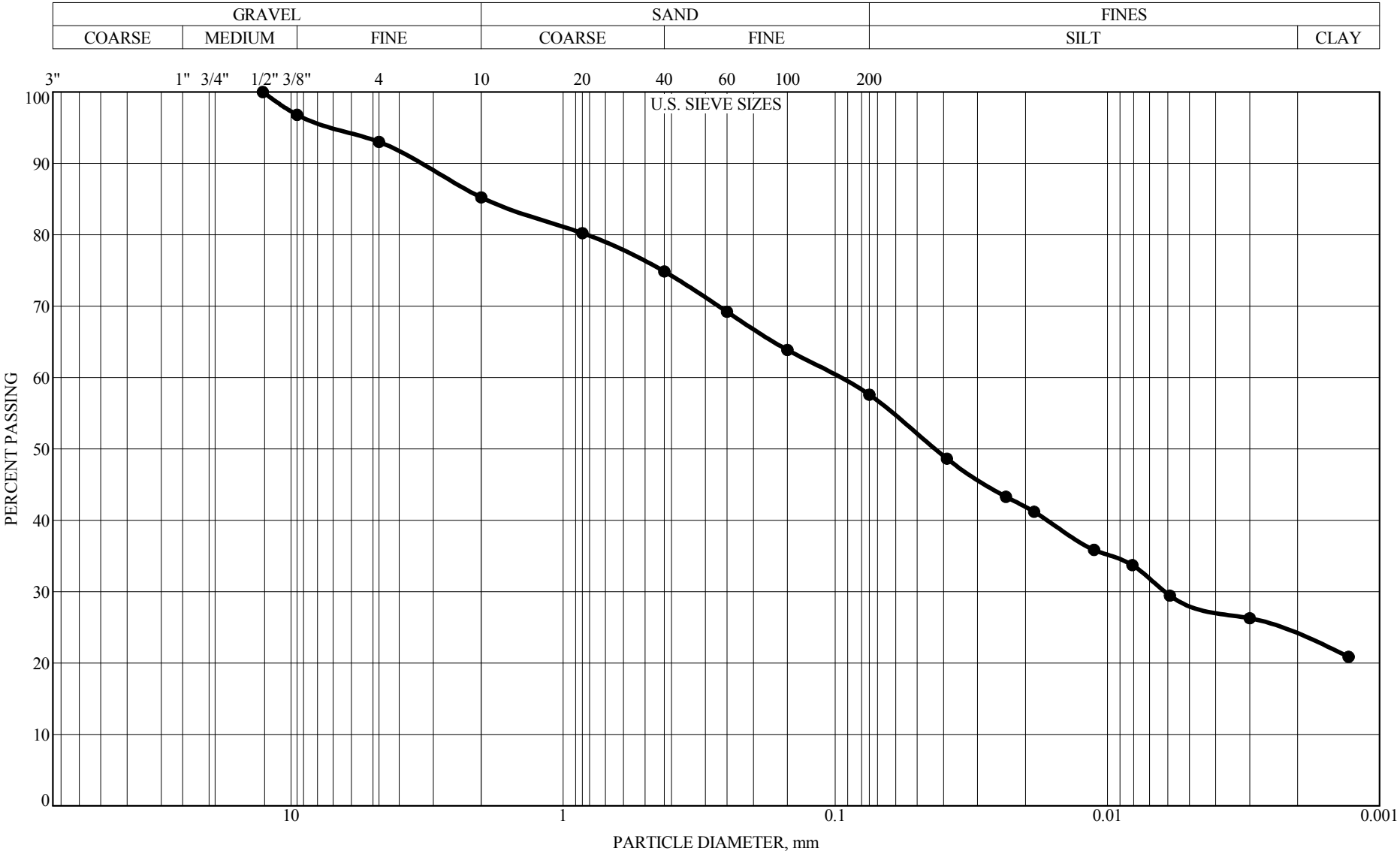
GRAVEL	21.3%
SAND	31.6%
SILT	29.2%
CLAY	17.8%

CLASSIFICATION:

A-6 (6), brown
CLAYEY SAND(SC)

LL=36, PL=15, PI=21, P200=47.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

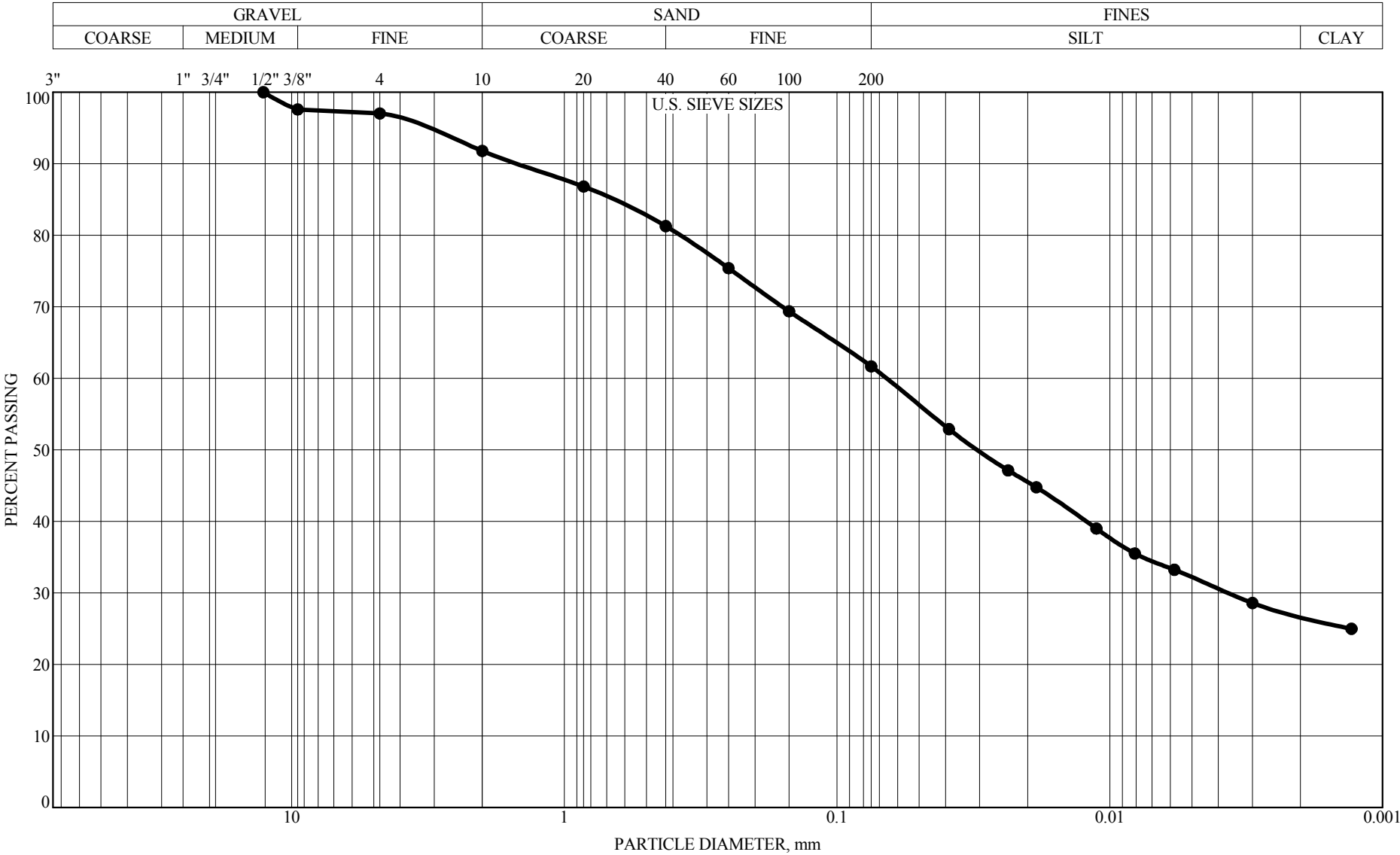


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-54 DEPTH: 1.0'-10.0'

GRAVEL 14.8%
SAND 27.6%
SILT 33.9%
CLAY 23.7%

CLASSIFICATION:
A-6 (11), brown
SANDY LEAN CLAY(CL)
LL=40, PL=15, PI=25, P200=57.6%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



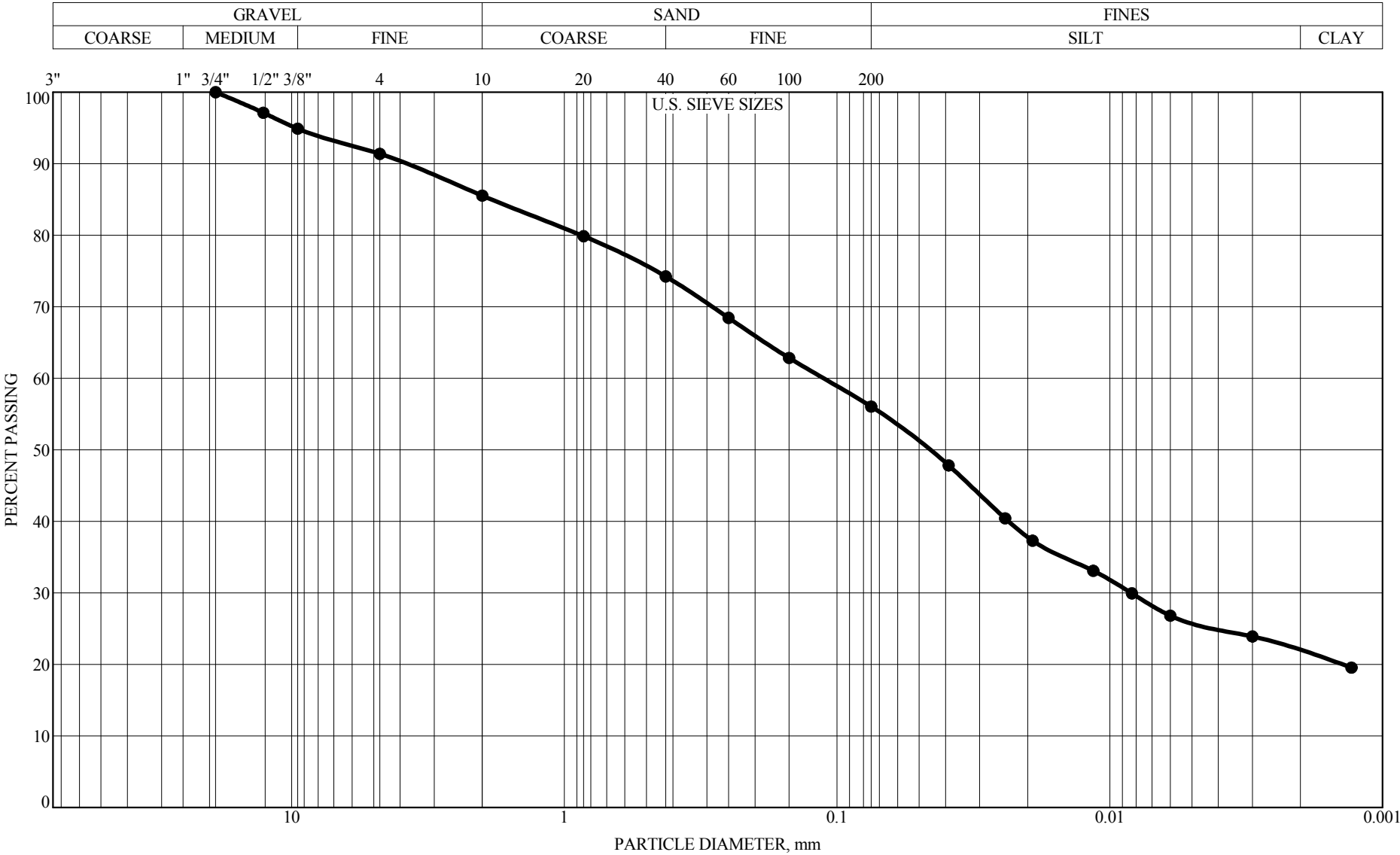
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-55 DEPTH: 1.0'-10.0'

GRAVEL	8.2%
SAND	30.1%
SILT	34.8%
CLAY	26.8%

CLASSIFICATION:
A-6 (12), brown
SANDY LEAN CLAY(CL)

LL=39, PL=14, PI=25, P200=61.6%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

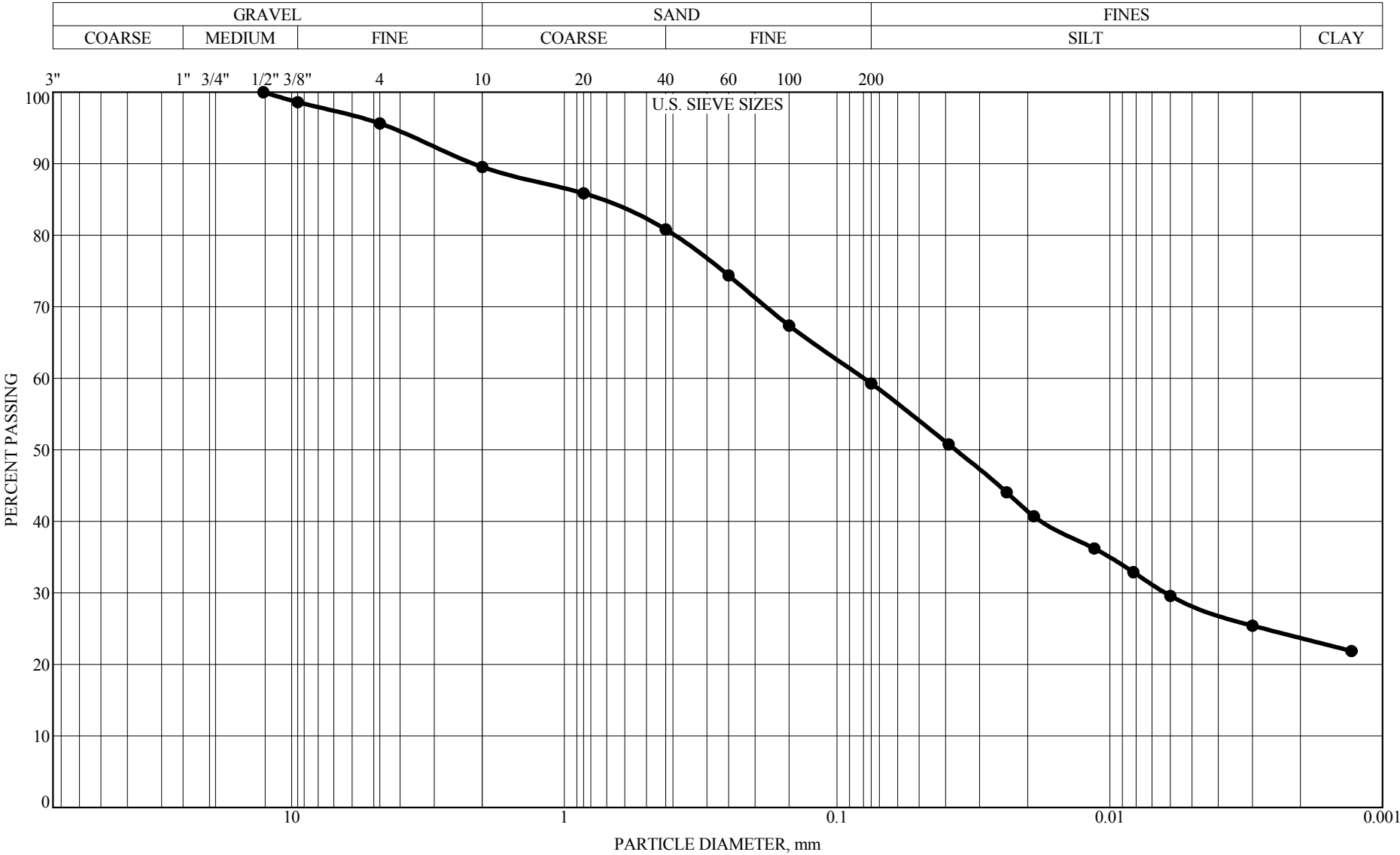


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-56 DEPTH: 1.0'-10.0'

GRAVEL 14.5%
SAND 29.5%
SILT 34.3%
CLAY 21.8%

CLASSIFICATION:
A-6 (9), brown
SANDY LEAN CLAY(CL)
LL=38, PL=16, PI=22, P200=56.1%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



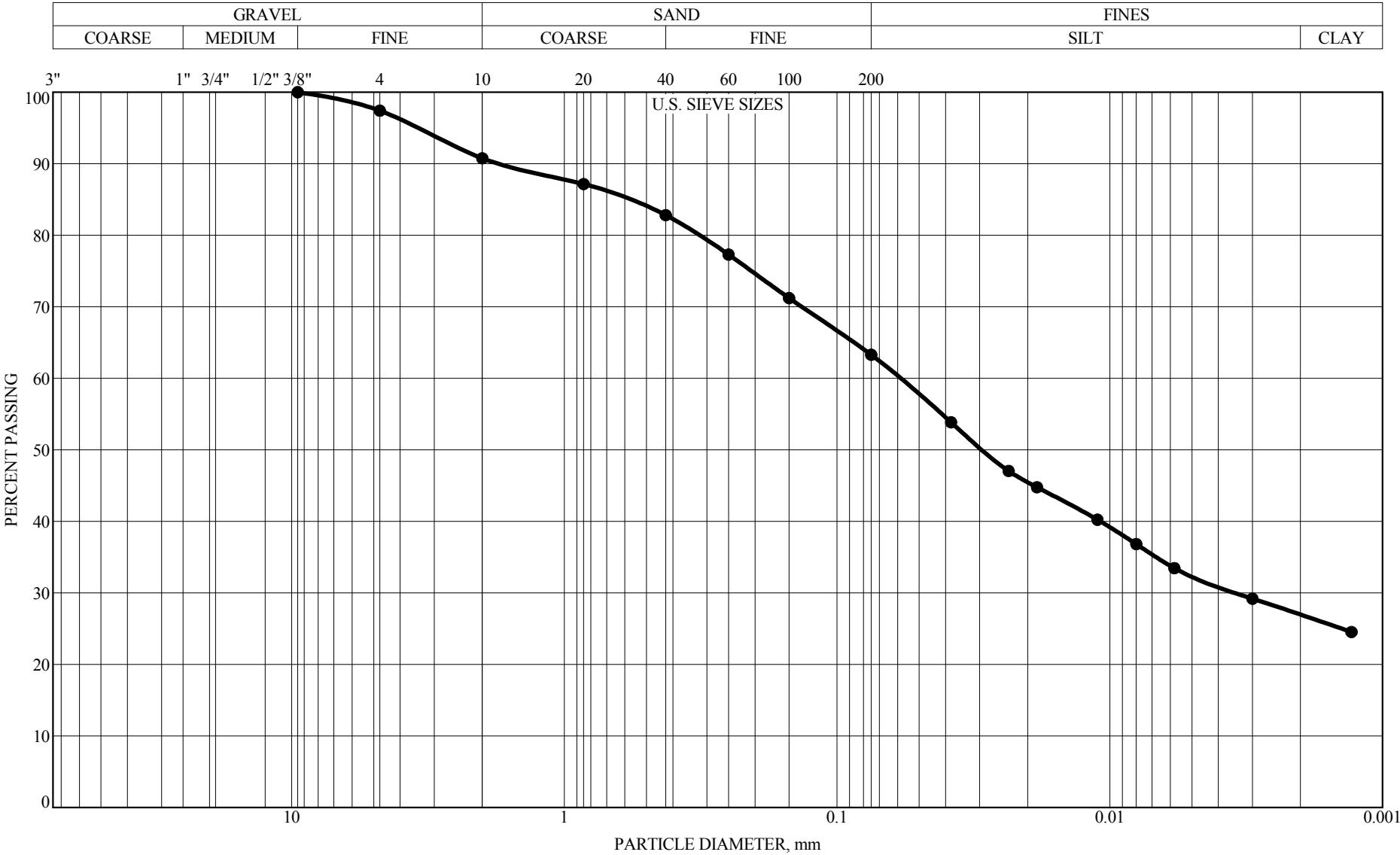
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-57 DEPTH: 0.9'-6.0'

GRAVEL 10.5%
SAND 30.3%
SILT 35.6%
CLAY 23.7%

CLASSIFICATION:
A-6 (10), brown
SANDY LEAN CLAY(CL)

LL=37, PL=14, PI=23, P200=59.3%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



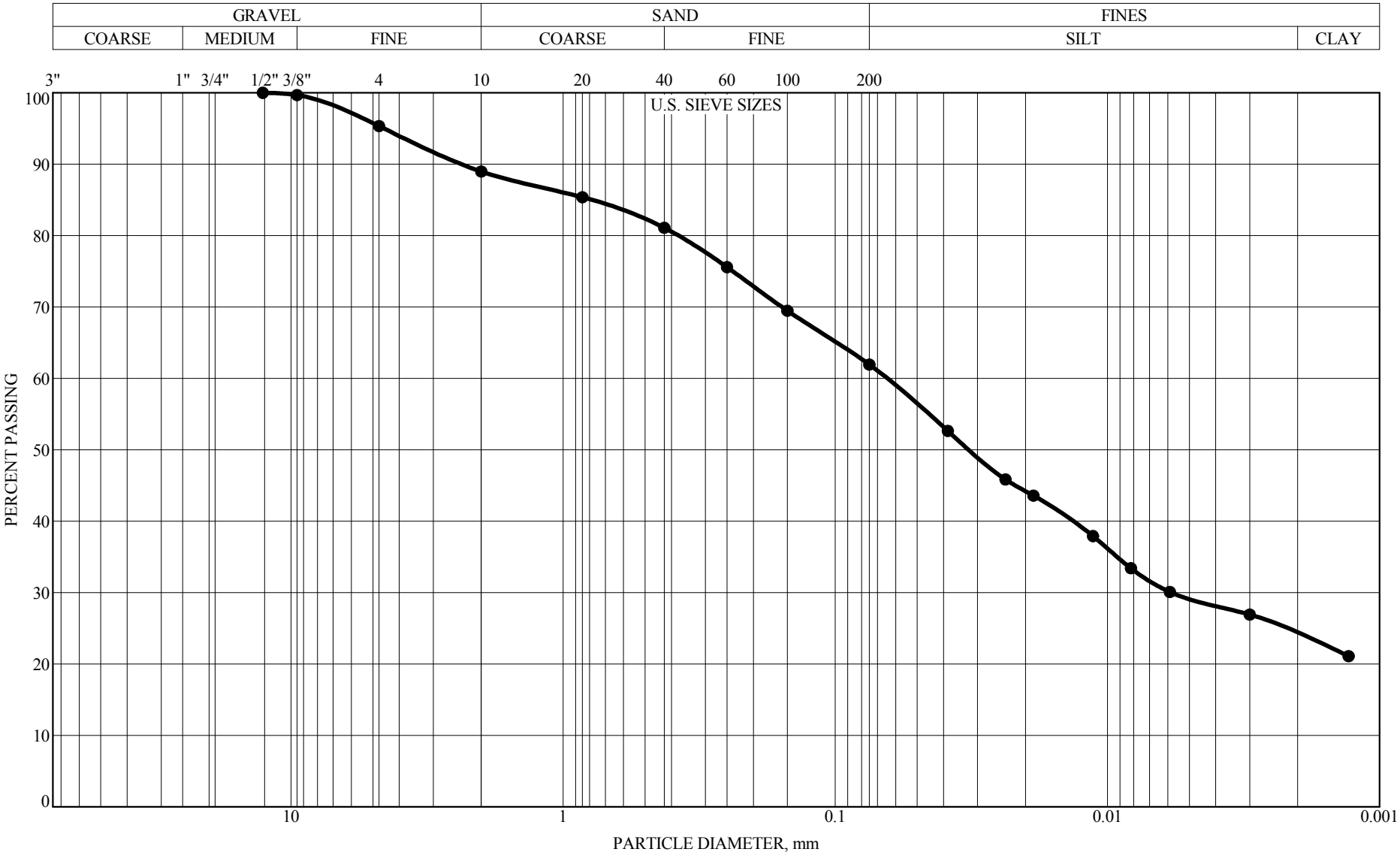
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-58 DEPTH: 0.9'-10.0'

GRAVEL 9.2%
SAND 27.5%
SILT 36.4%
CLAY 26.9%

CLASSIFICATION:
A-6 (13), brown
SANDY LEAN CLAY(CL)

LL=40, PL=15, PI=25, P200=63.3%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

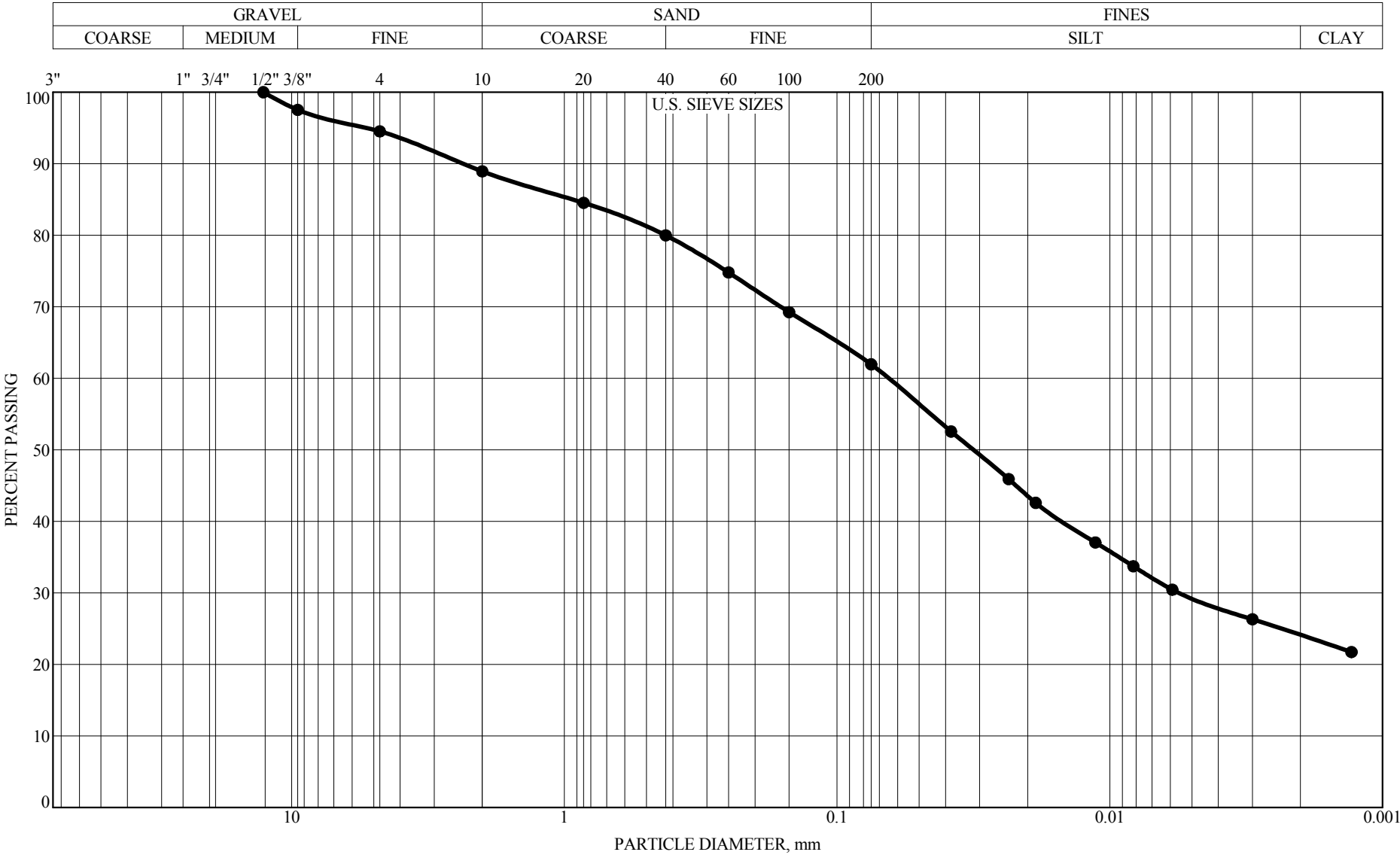


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-59 DEPTH: 1.1'-10.0'

GRAVEL 11.0%
SAND 27.0%
SILT 37.8%
CLAY 24.1%

CLASSIFICATION:
A-6 (11), brown
SANDY LEAN CLAY(CL)
LL=39, PL=16, PI=23, P200=61.9%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



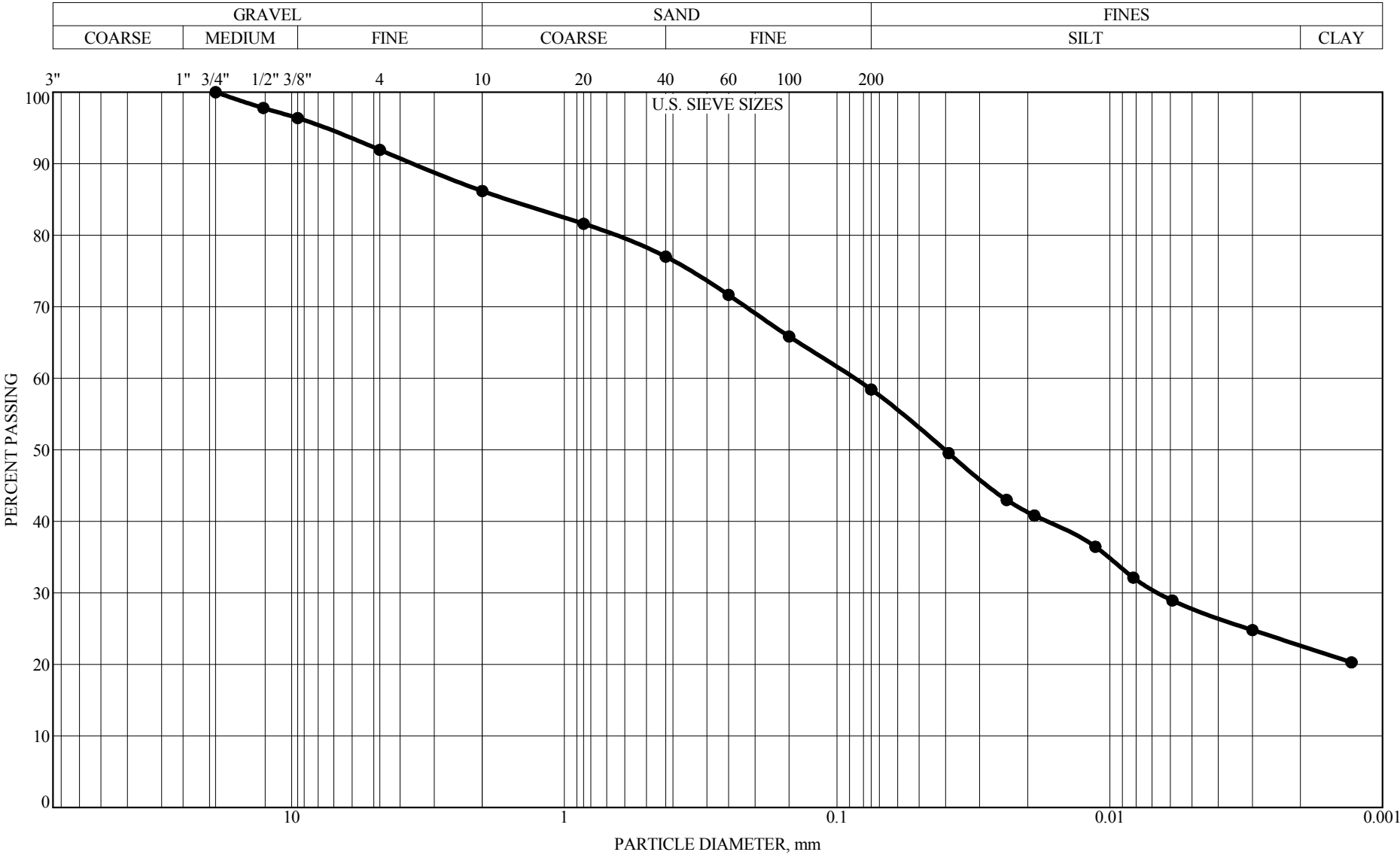
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-60 DEPTH: 1.0'-10.0'

GRAVEL 11.1%
SAND 27.0%
SILT 37.9%
CLAY 24.1%

CLASSIFICATION:
A-6 (12), brown
SANDY LEAN CLAY(CL)

LL=38, PL=14, PI=24, P200=62.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



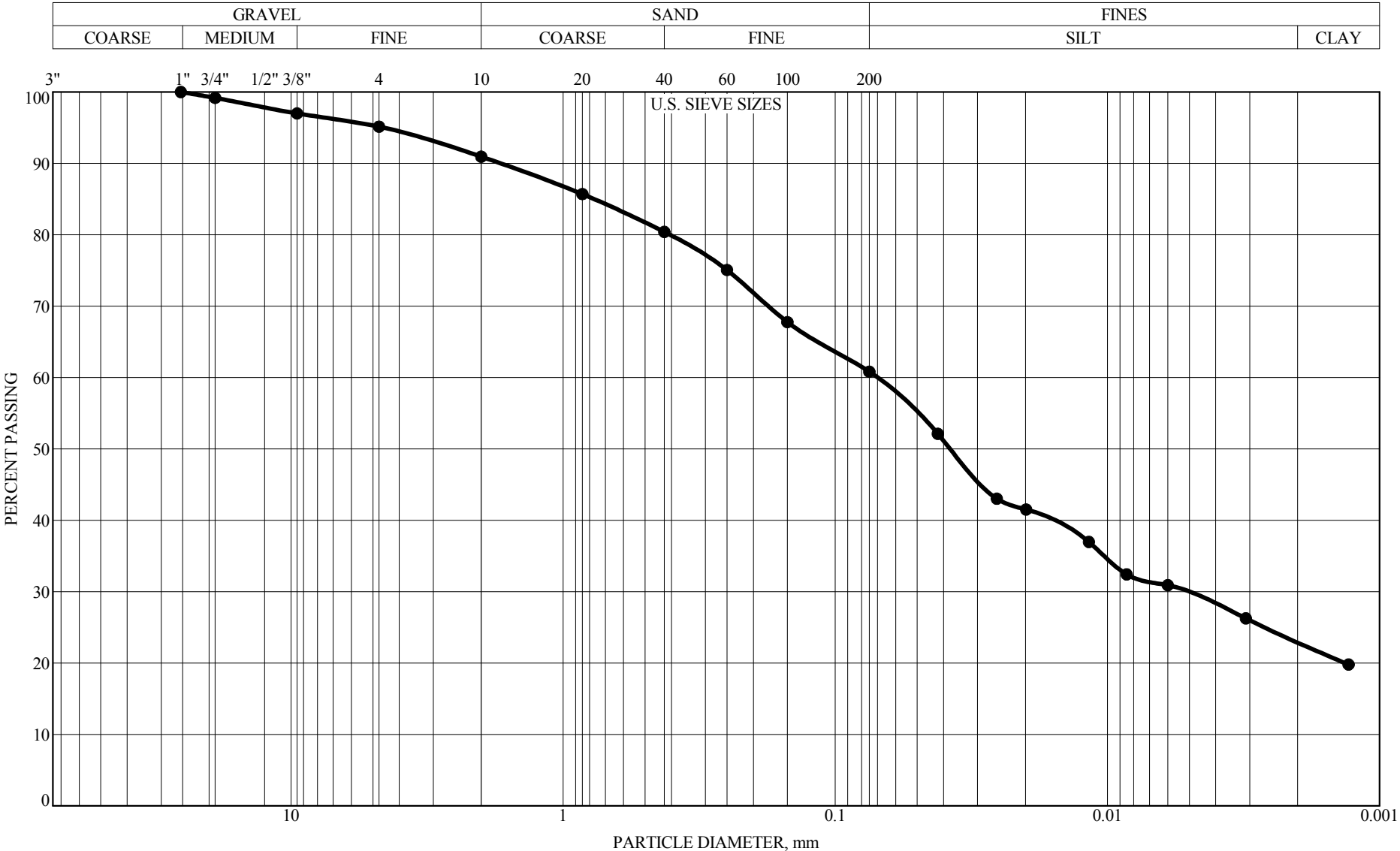
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-61 DEPTH: 1.1'-10.0'

GRAVEL 13.8%
SAND 27.8%
SILT 35.8%
CLAY 22.6%

CLASSIFICATION:
A-6 (10), brown
SANDY LEAN CLAY(CL)

LL=38, PL=14, PI=24, P200=58.4%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



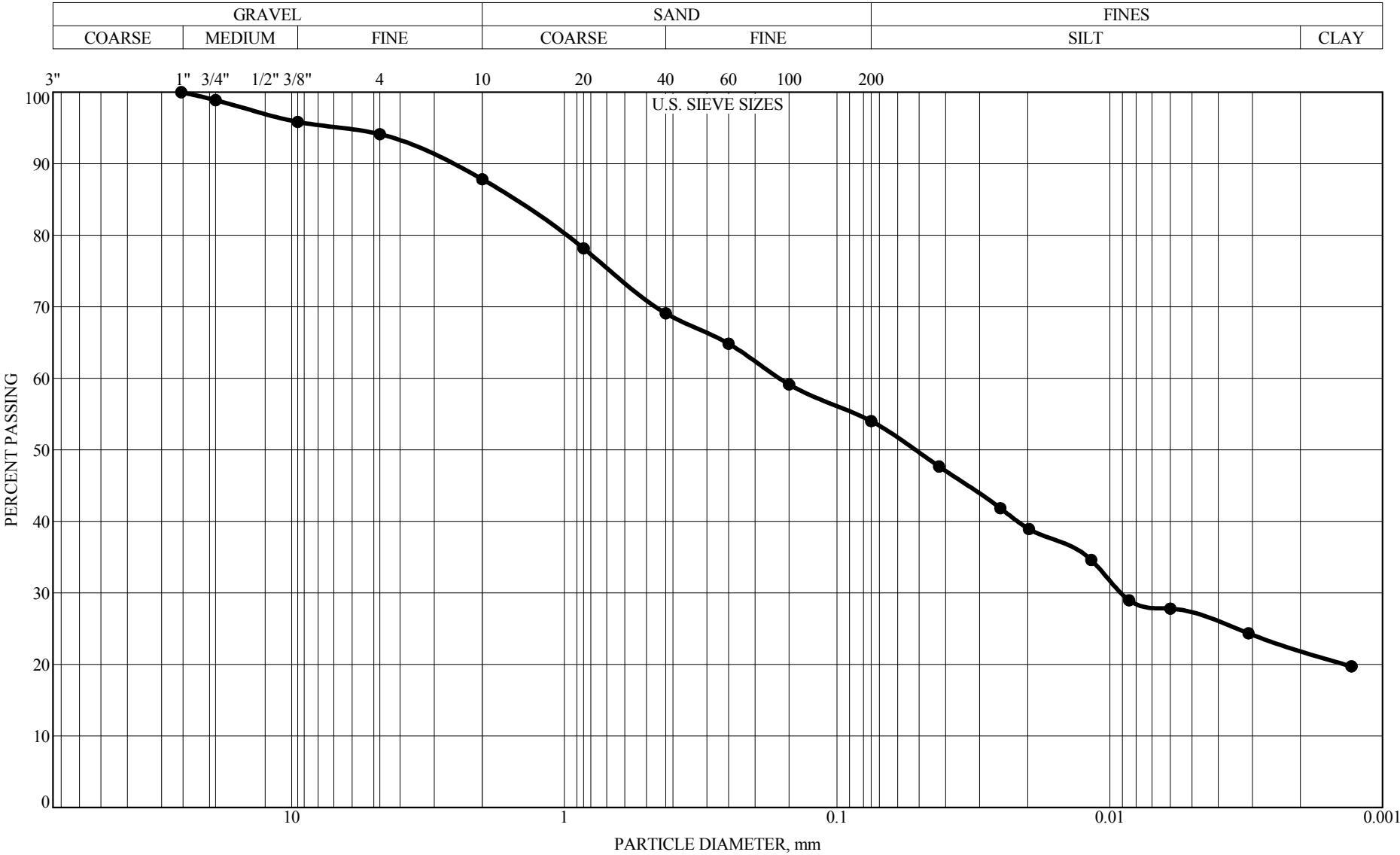
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-62 DEPTH: 1.0'-10.0'

GRAVEL 9.1%
SAND 30.1%
SILT 37.8%
CLAY 23.0%

CLASSIFICATION:
A-7-6 (11), brown
SANDY LEAN CLAY(CL)

LL=41, PL=18, PI=23, P200=60.8%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



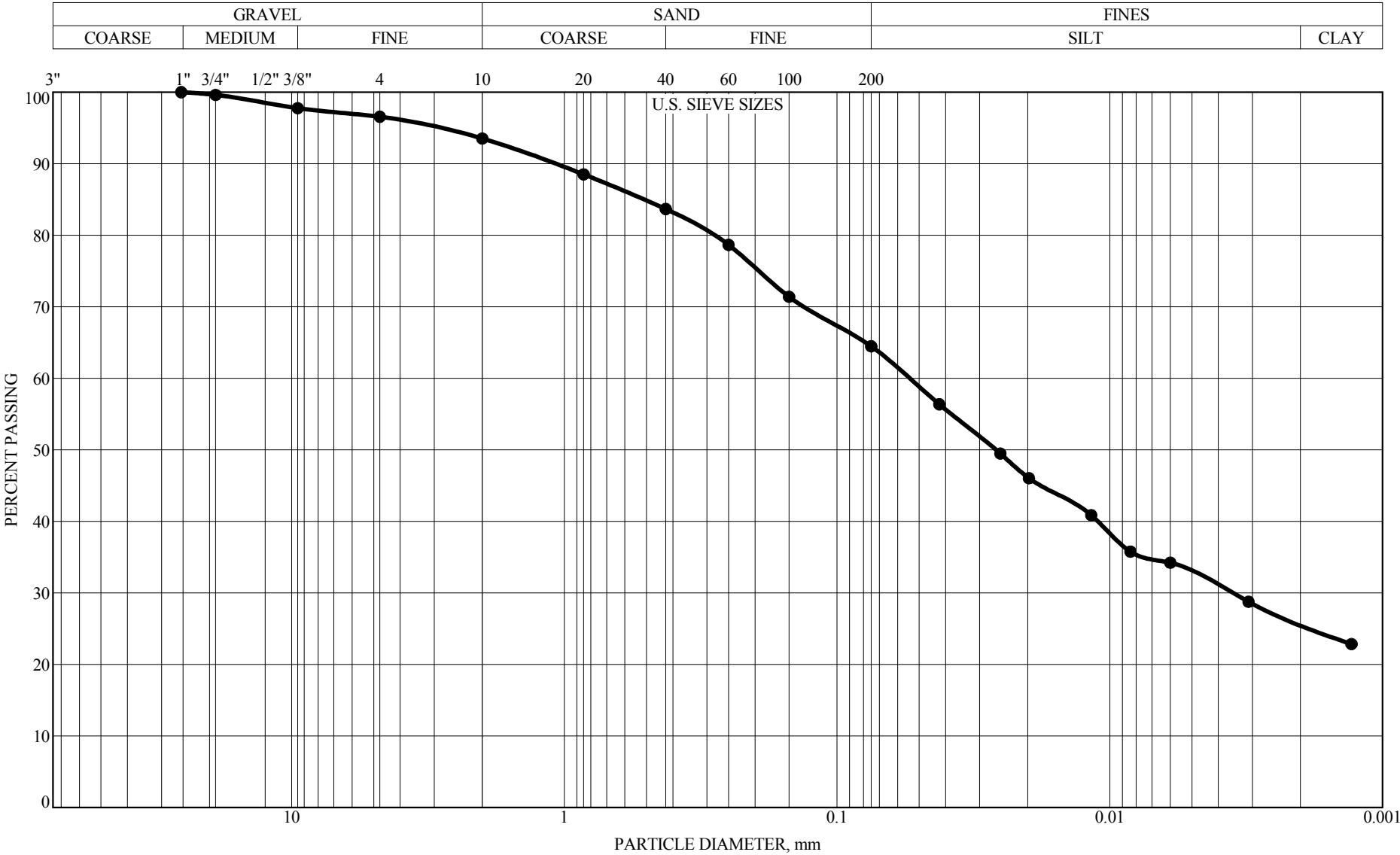
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-63 DEPTH: 1.0'-10.0'

GRAVEL	12.2%
SAND	33.8%
SILT	32.0%
CLAY	22.0%

CLASSIFICATION:
A-7-6 (10), brown
SANDY LEAN CLAY(CL)

LL=43, PL=17, PI=26, P200=54.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

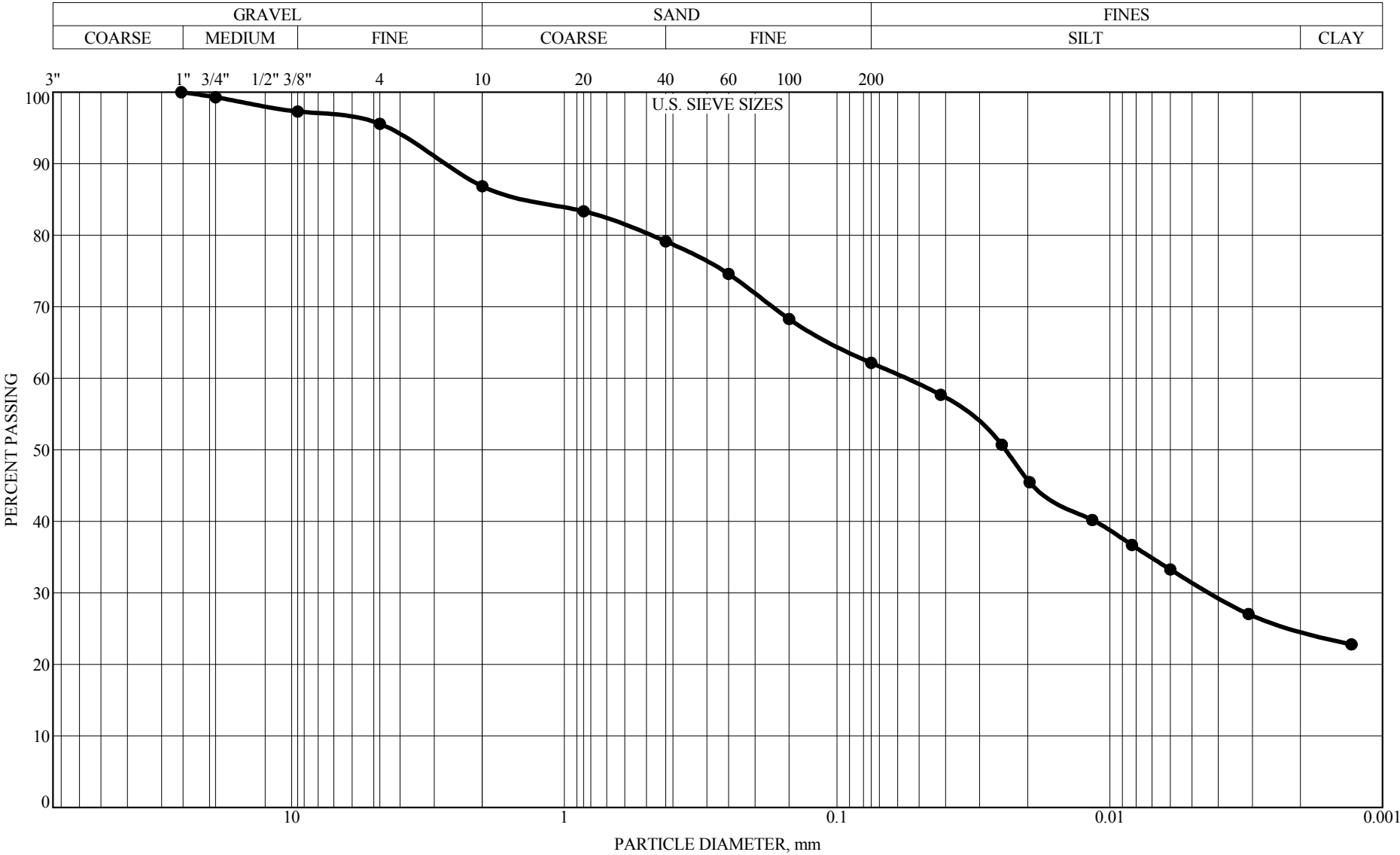


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-64 DEPTH: 1.0'-10.0'

GRAVEL 6.5%
SAND 29.0%
SILT 38.7%
CLAY 25.8%

CLASSIFICATION:
A-6 (13), brown
SANDY LEAN CLAY(CL)
LL=39, PL=15, PI=24, P200=64.5%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



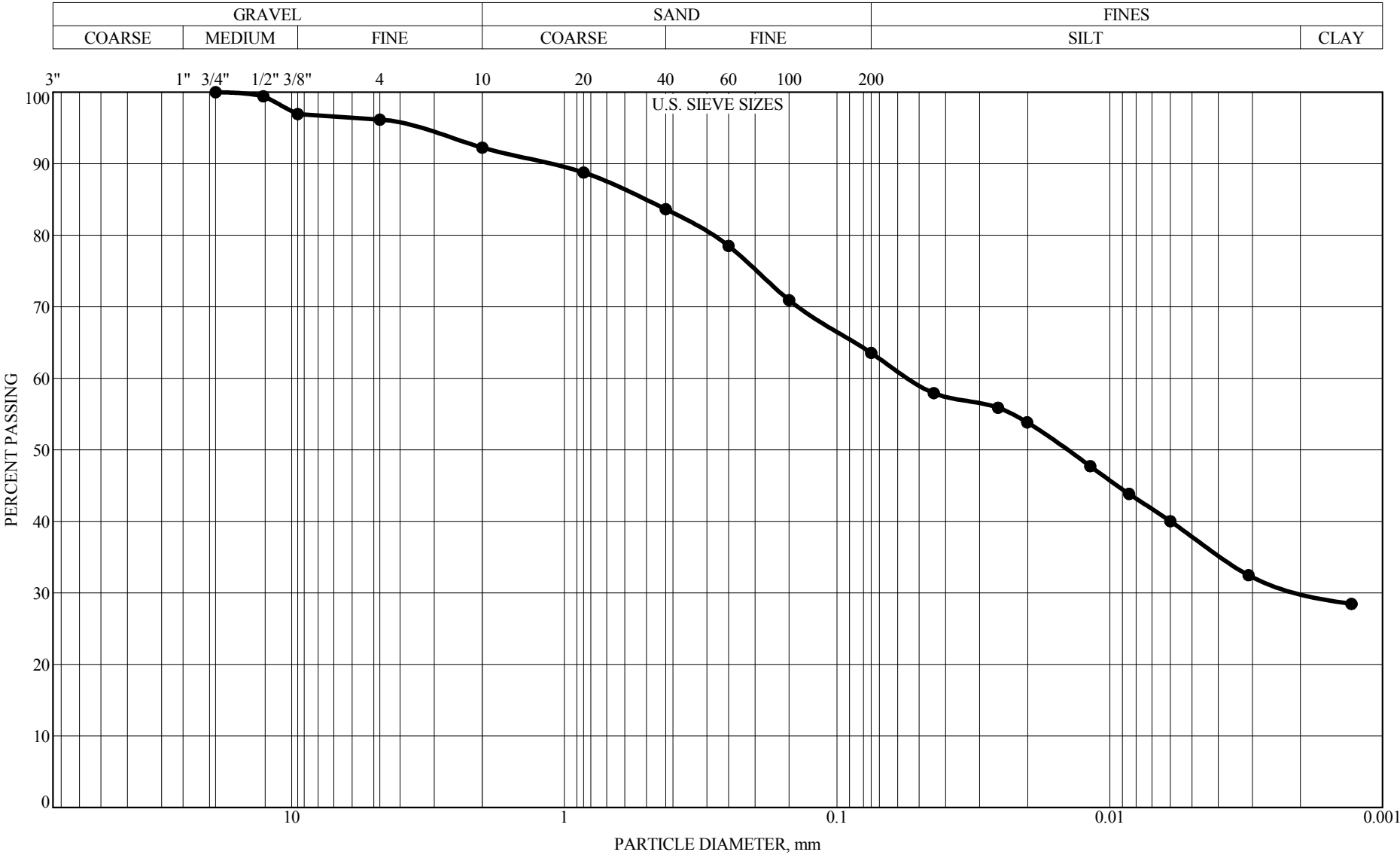
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-65 DEPTH: 1.0'-10.0'

GRAVEL	13.1%
SAND	24.7%
SILT	37.3%
CLAY	24.9%

CLASSIFICATION:
A-6 (11), brown
SANDY LEAN CLAY(CL)

LL=39, PL=16, PI=23, P200=62.2%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



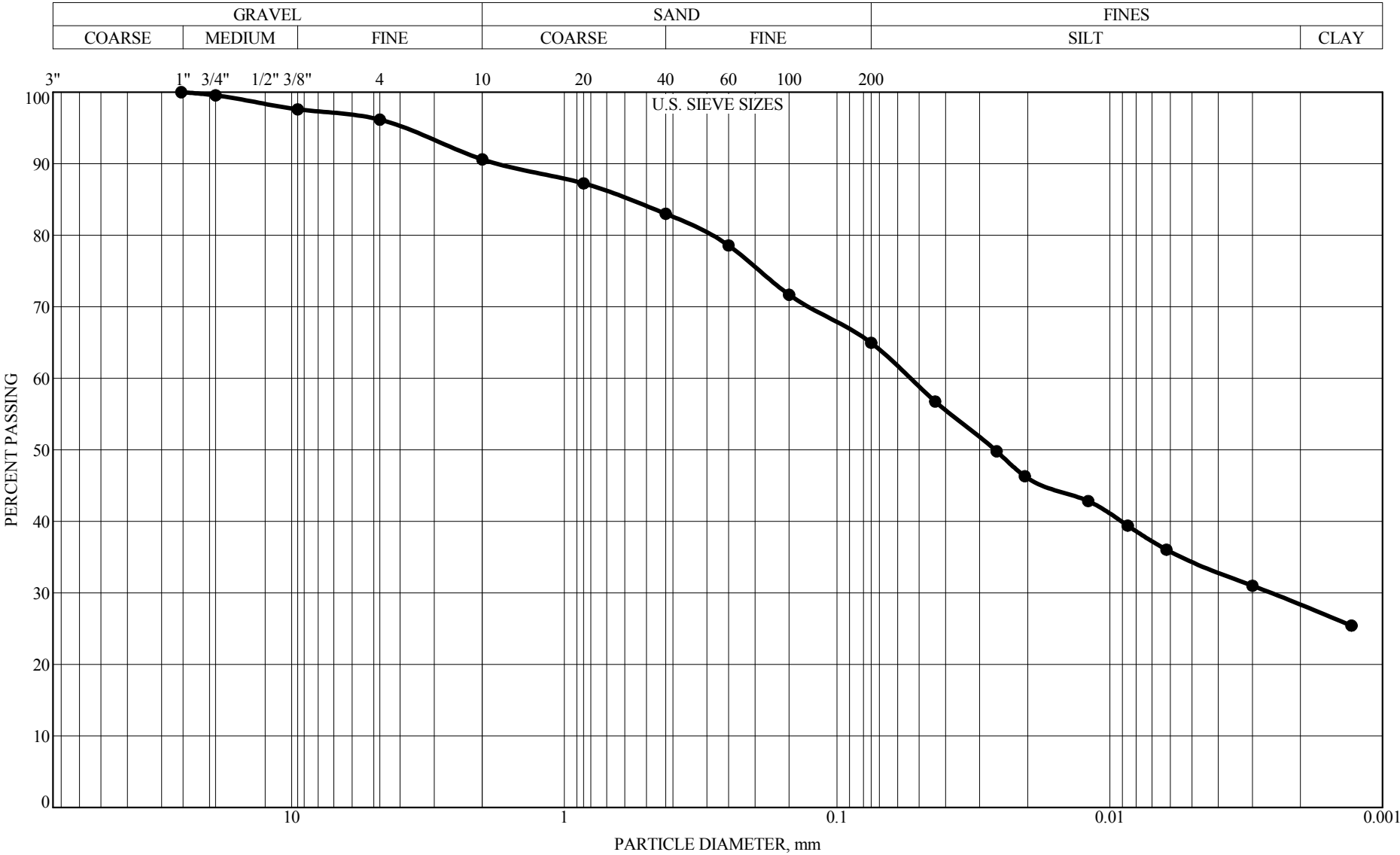
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-66 DEPTH: 1.0'-10.0'

GRAVEL 7.8%
SAND 28.7%
SILT 33.1%
CLAY 30.5%

CLASSIFICATION:
A-7-6 (16), brown
SANDY LEAN CLAY(CL)

LL=44, PL=15, PI=29, P200=63.6%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



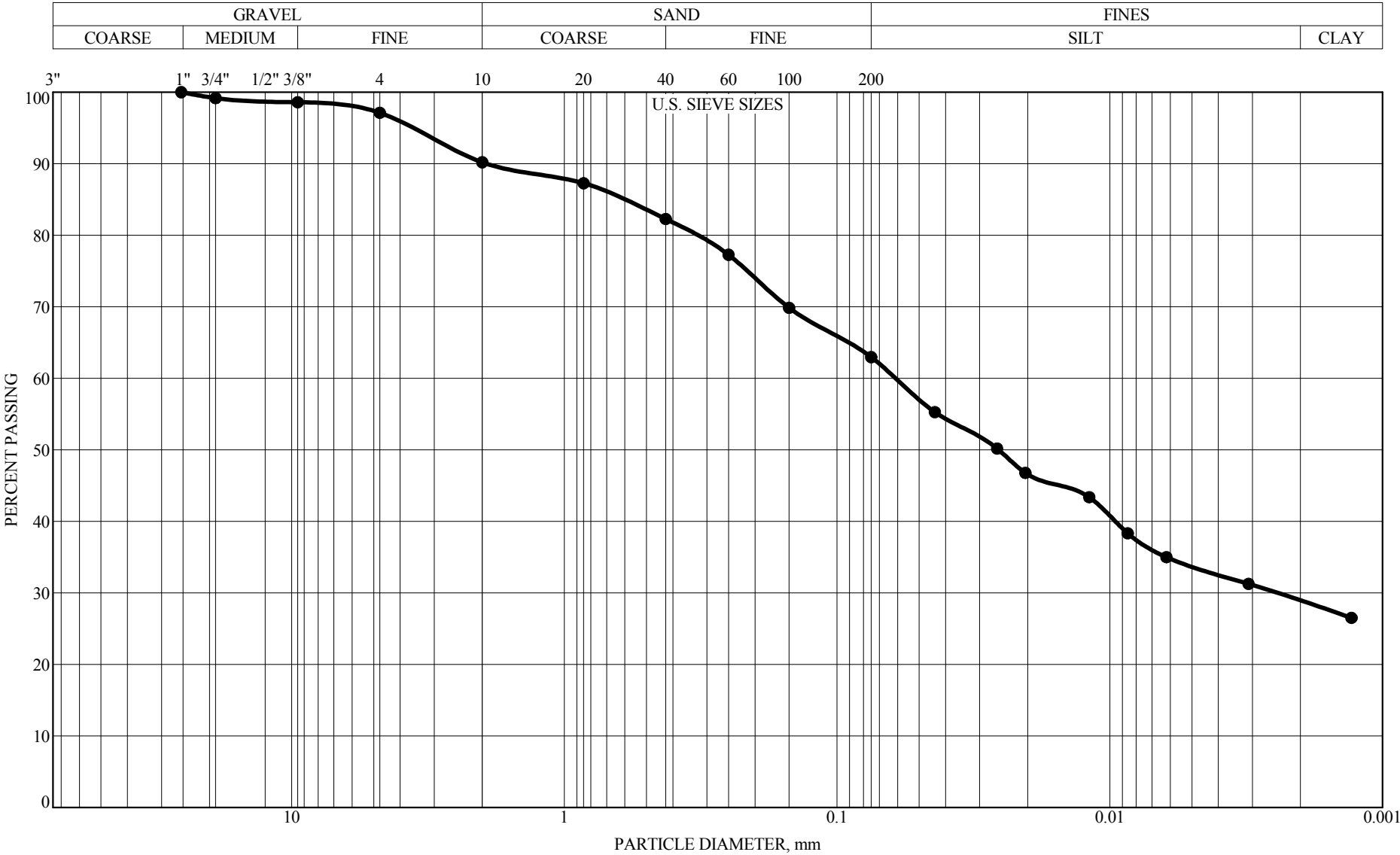
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-67 DEPTH: 0.8'-10.0'

GRAVEL 9.4%
SAND 25.6%
SILT 36.7%
CLAY 28.3%

CLASSIFICATION:
A-7-6 (15), brown
SANDY LEAN CLAY(CL)

LL=43, PL=16, PI=27, P200=65.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



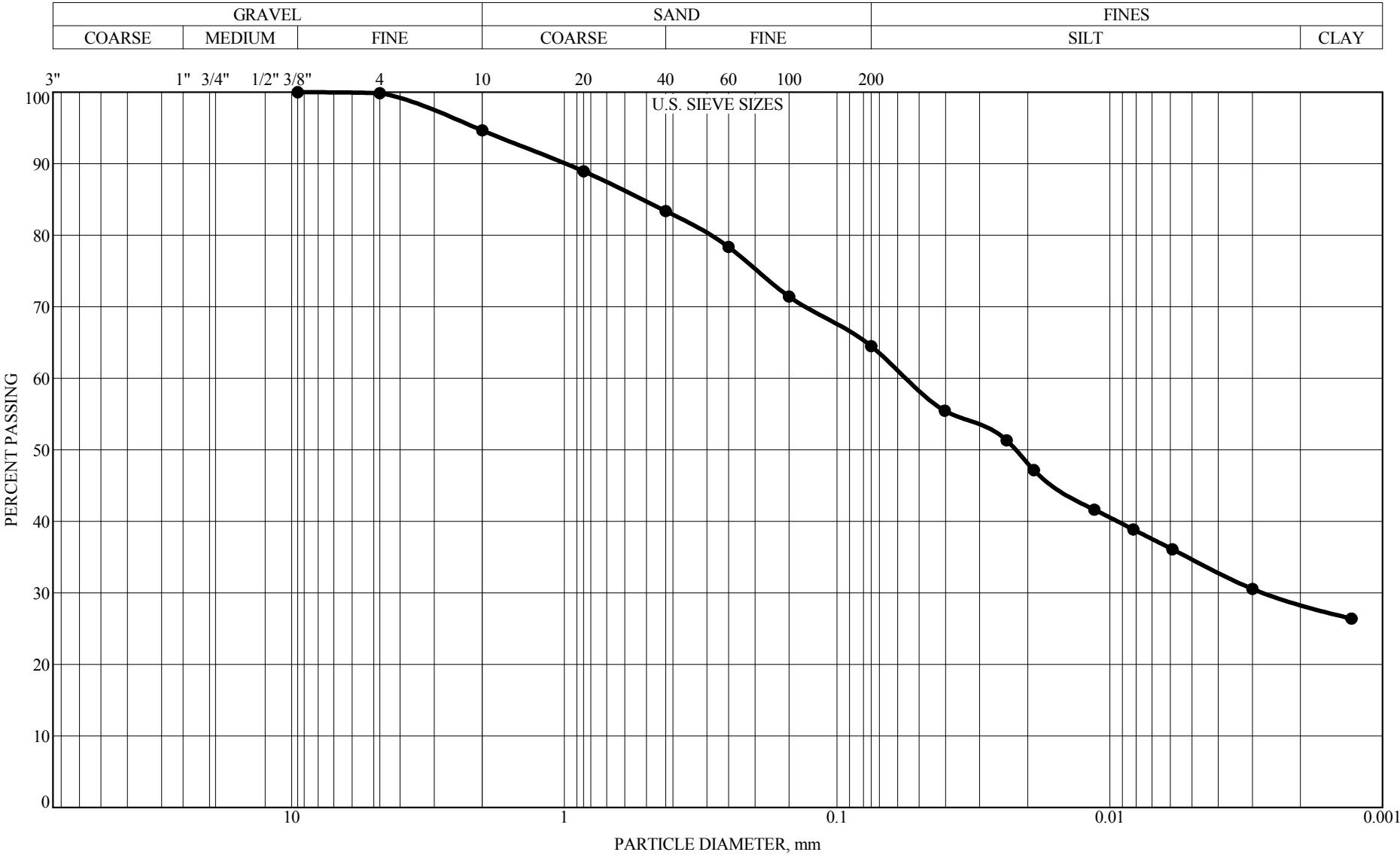
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-68 DEPTH: 1.0'-10.0'

GRAVEL	9.8%
SAND	27.2%
SILT	34.1%
CLAY	28.9%

CLASSIFICATION:
A-7-6 (13), brown
SANDY LEAN CLAY(CL)

LL=41, PL=15, PI=26, P200=63.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



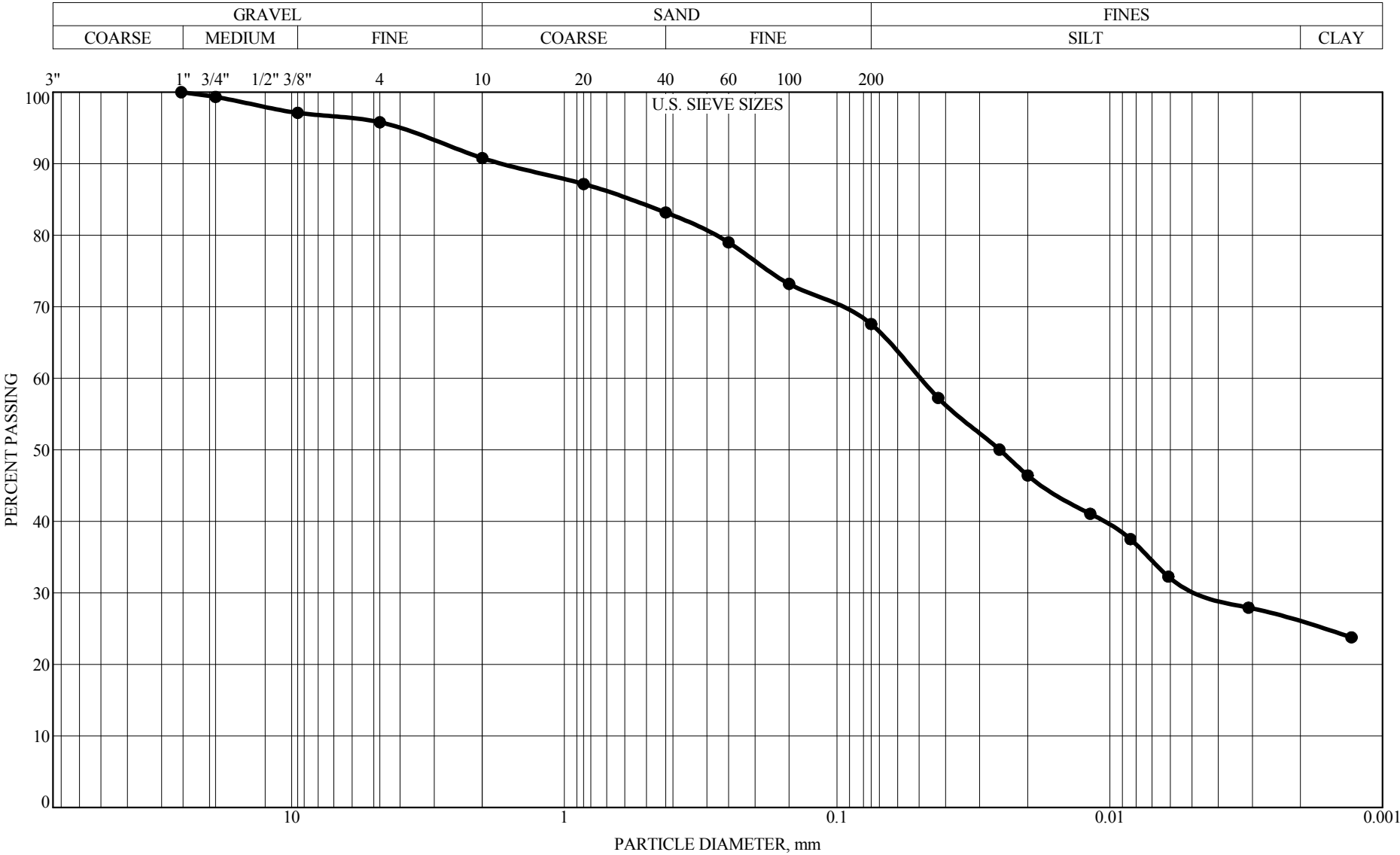
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-69 DEPTH: 1.0'-10.0'

GRAVEL	5.3%
SAND	30.2%
SILT	36.0%
CLAY	28.5%

CLASSIFICATION:
A-7-6 (15), brown
SANDY LEAN CLAY(CL)

LL=42, PL=15, PI=27, P200=64.5%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



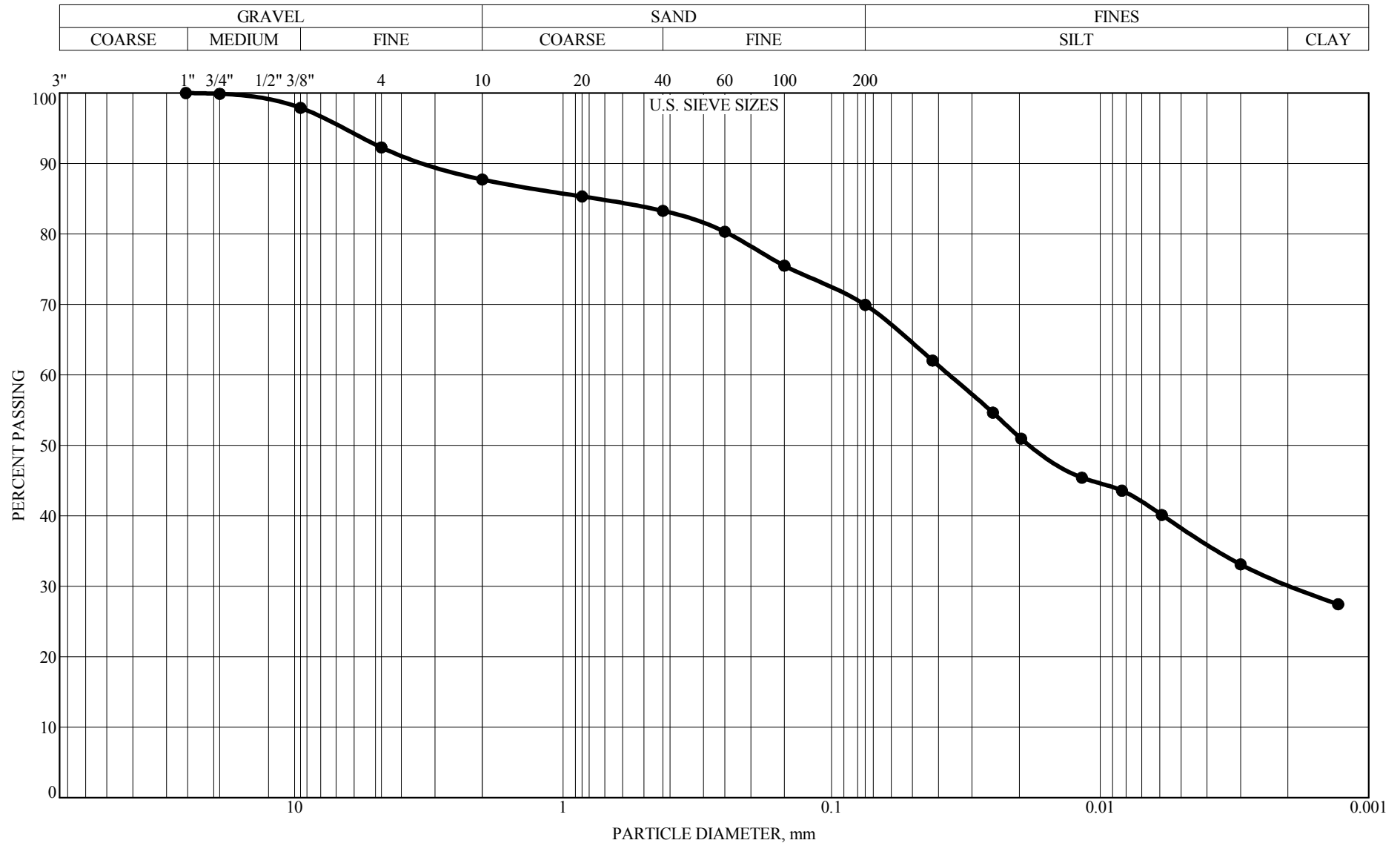
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-70 DEPTH: 0.9'-6.5'

GRAVEL 9.2%
SAND 23.2%
SILT 41.7%
CLAY 25.8%

CLASSIFICATION:
A-7-6 (16), black to dark brown
SANDY LEAN CLAY(CL)

LL=44, PL=18, PI=26, P200=67.5%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



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Braun Project BM-13-05525

Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota

BORING: LSS-70 DEPTH: 6.5'-10.0'

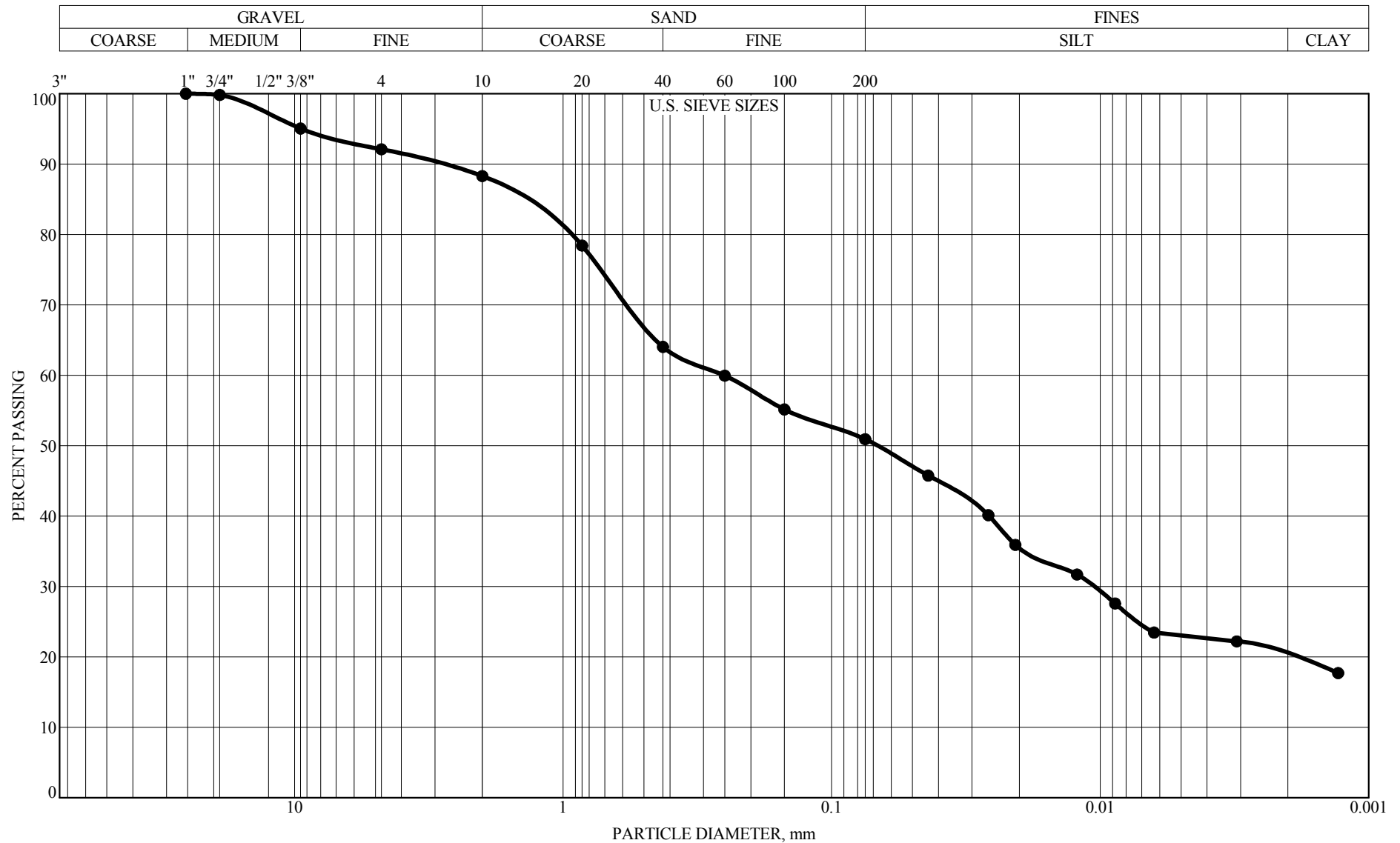
GRAVEL	12.3%
SAND	17.8%
SILT	39.6%
CLAY	30.4%

CLASSIFICATION:

A-7-6 (22), brown
SANDY FAT CLAY(CH)

LL=50, PL=16, PI=34, P200=70.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUNSM
INTERTEC

Braun Project BM-13-05525

**Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota**

BORING: LSS-71 DEPTH: 1.0'-5.0'

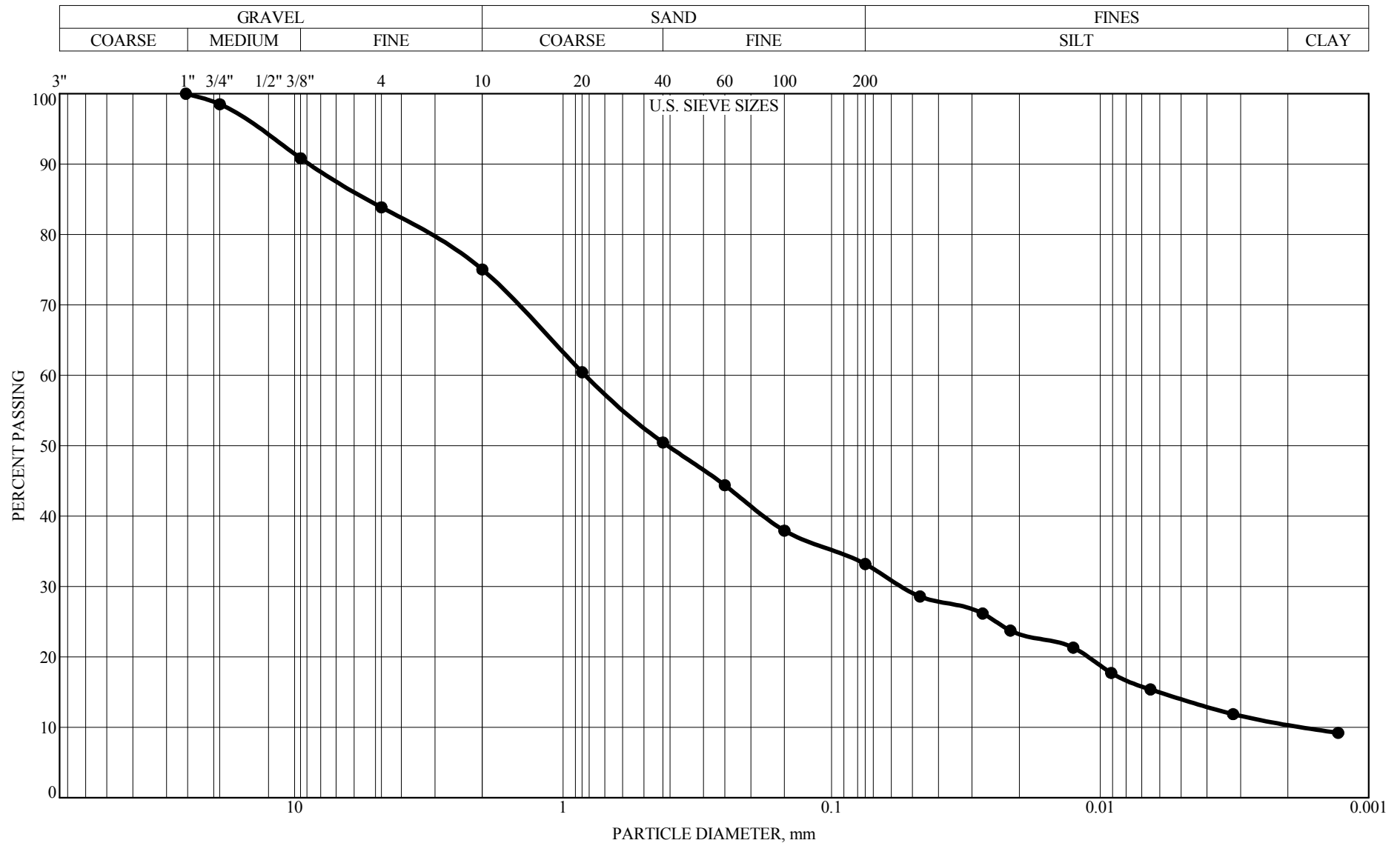
GRAVEL	11.7%
SAND	37.4%
SILT	31.0%
CLAY	19.9%

CLASSIFICATION:

A-7-6 (9), brown
SANDY LEAN CLAY(CL)

LL=42, PL=16, PI=26, P200=50.9%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



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Braun Project BM-13-05525

Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota

BORING: LSS-71 DEPTH: 5.0'-10.0'

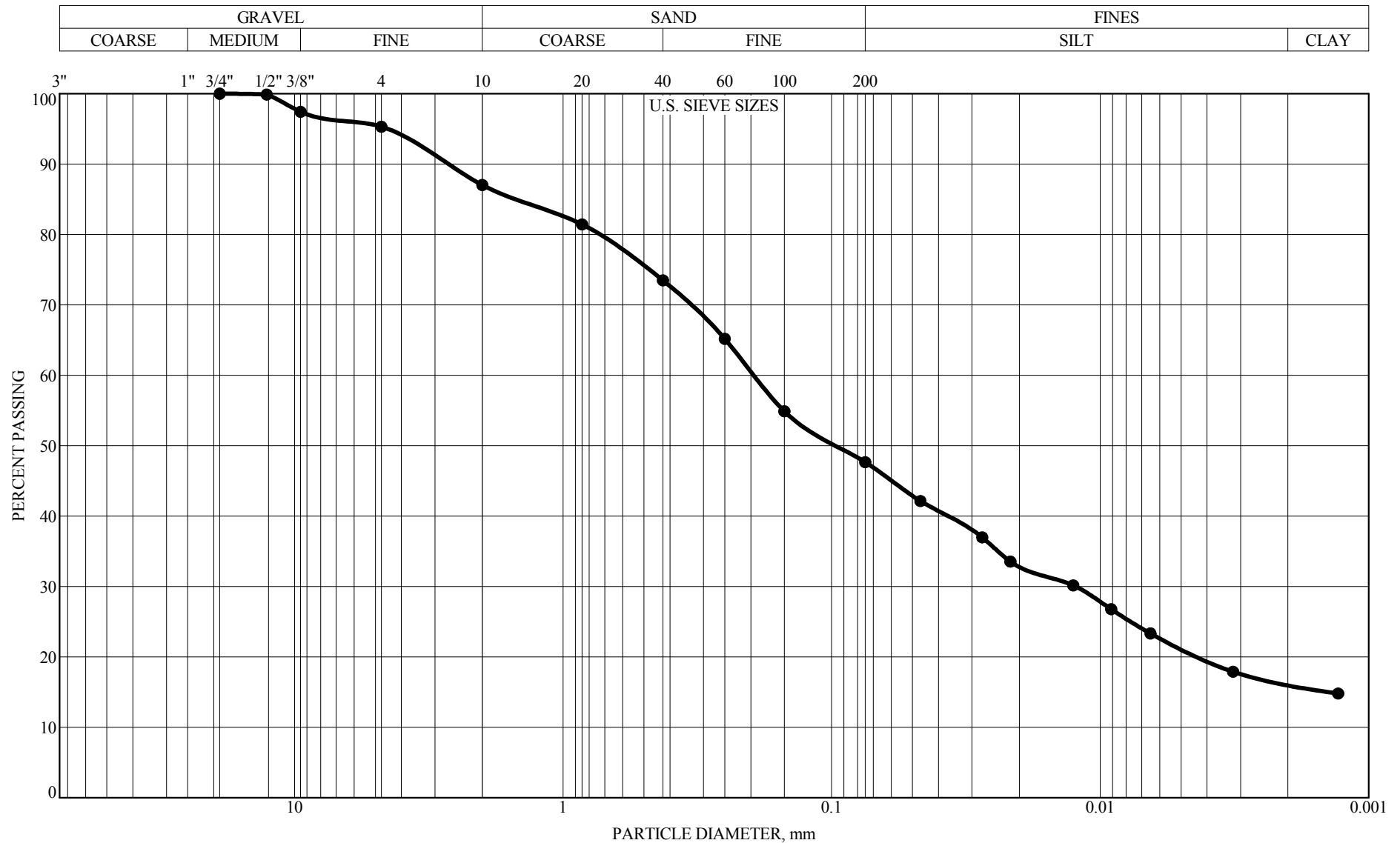
GRAVEL	25.0%
SAND	41.8%
SILT	22.7%
CLAY	10.5%

CLASSIFICATION:

A-2-6 (1), brown
CLAYEY SAND with GRAVEL(SC)

LL=28, PL=12, PI=16, P200=33.2%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



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Braun Project BM-13-05525

**Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota**

BORING: LSS-72 DEPTH: 0.9'-10.0'

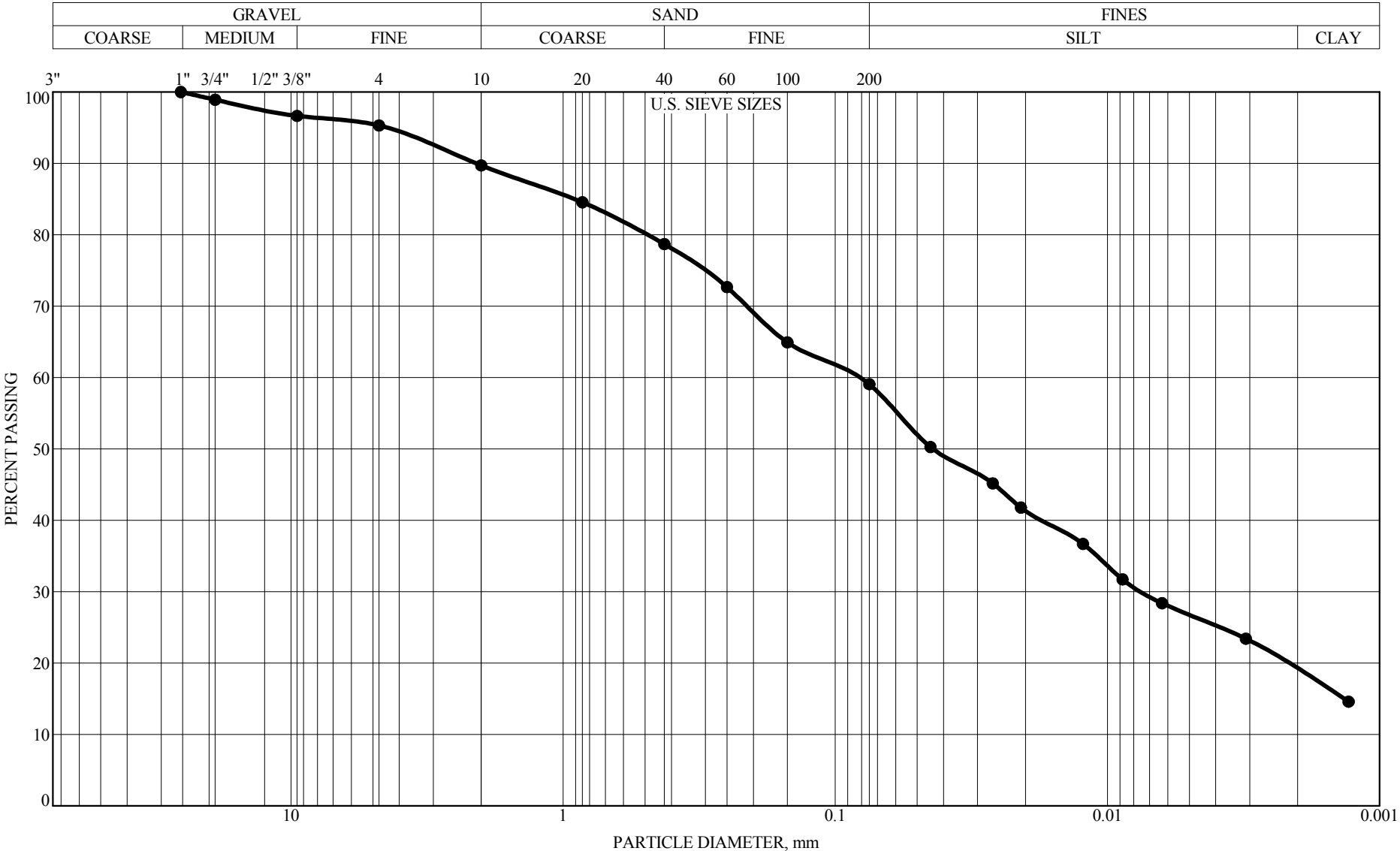
GRAVEL	13.0%
SAND	39.4%
SILT	31.4%
CLAY	16.3%

CLASSIFICATION:

A-6 (5), brown
CLAYEY SAND(SC)

LL=34, PL=17, PI=17, P200=47.7%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

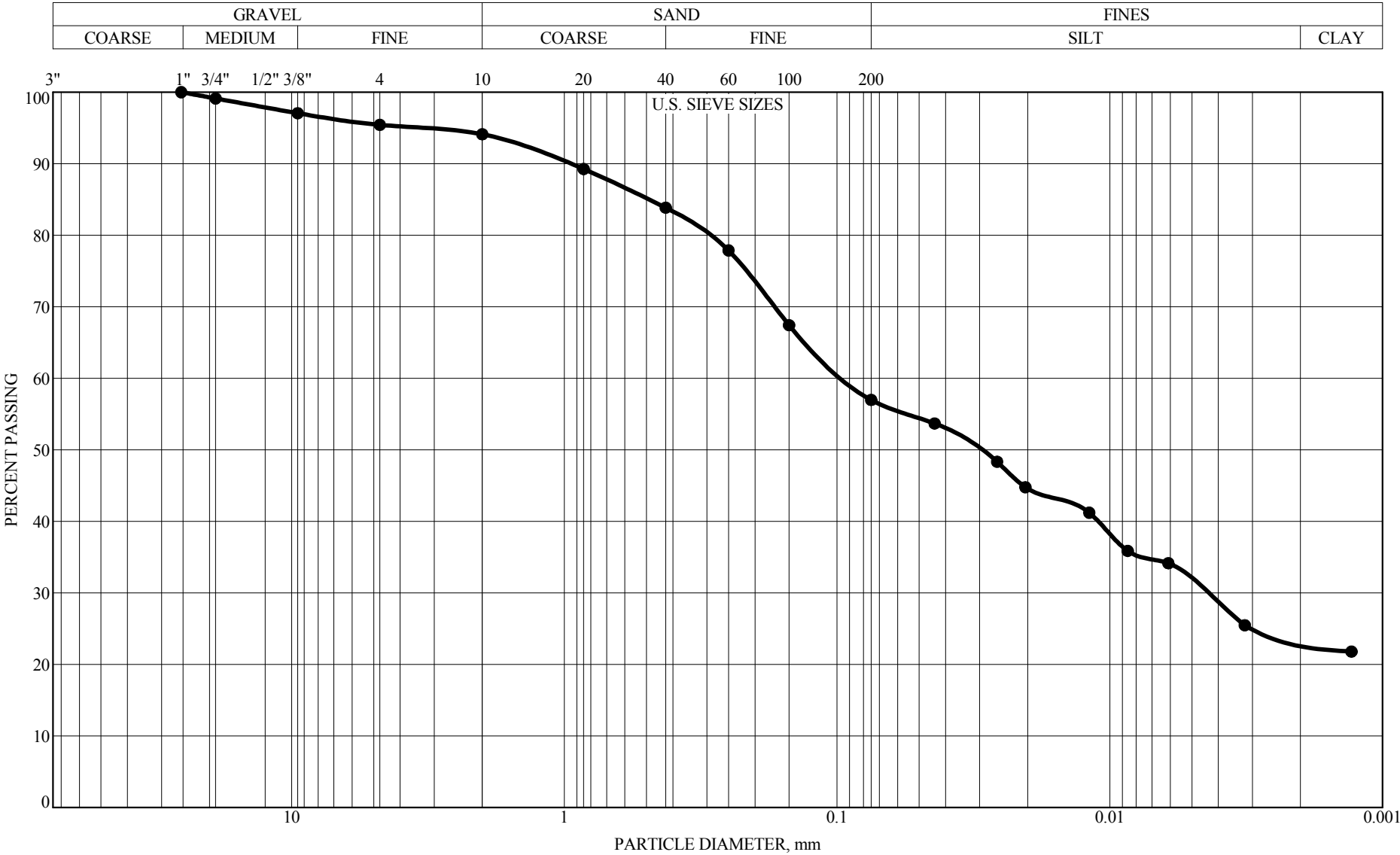


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-73 DEPTH: 1.0'-8.0'

GRAVEL 10.3%
SAND 30.6%
SILT 40.1%
CLAY 19.0%

CLASSIFICATION:
A-6 (10), brown
SANDY LEAN CLAY(CL)
LL=37, PL=15, PI=22, P200=59.1%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



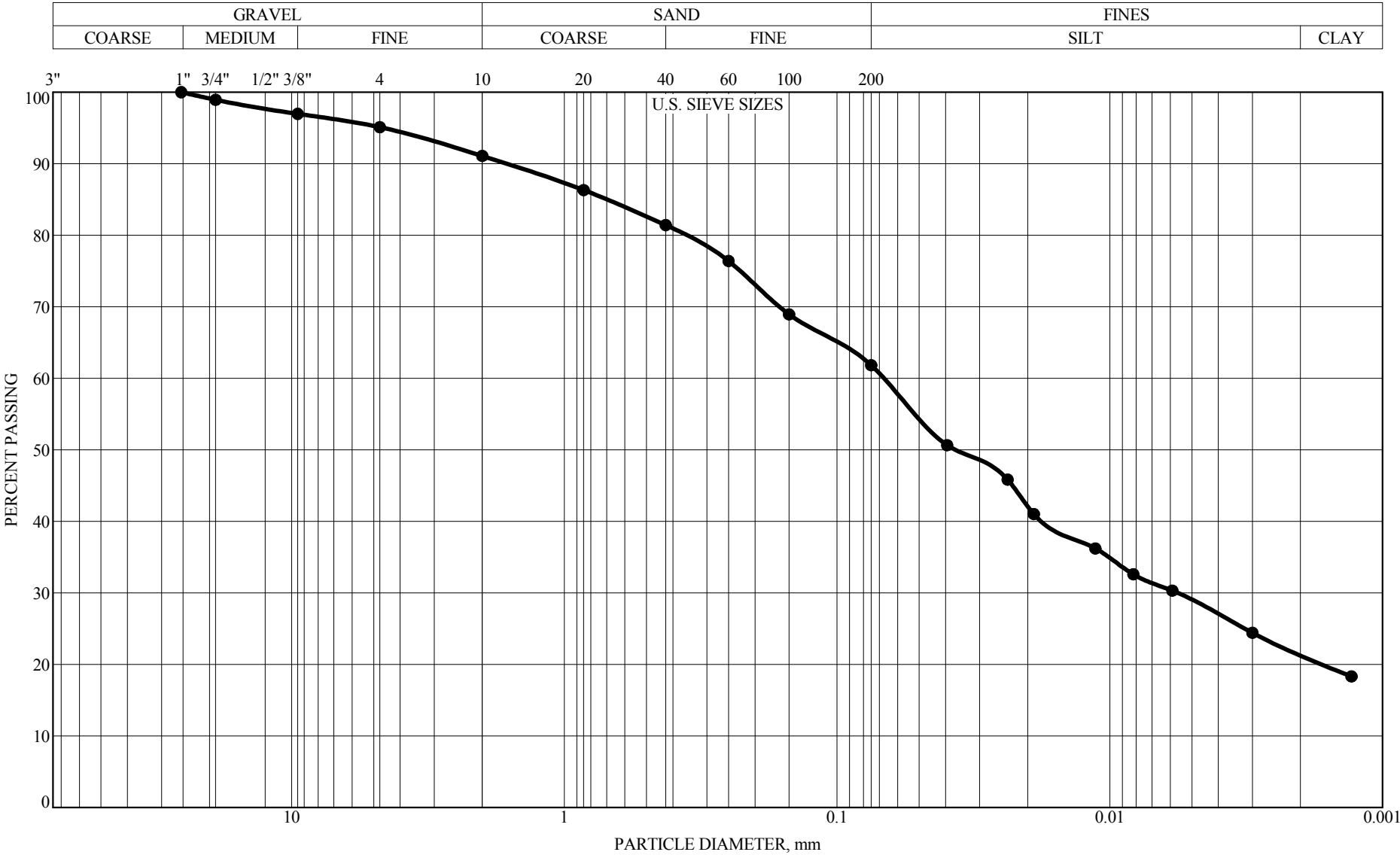
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-74 DEPTH: 1.2'-6.0'

GRAVEL 5.9%
SAND 37.1%
SILT 33.4%
CLAY 23.6%

CLASSIFICATION:
A-6 (9), brown
SANDY LEAN CLAY(CL)

LL=37, PL=15, PI=22, P200=57.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



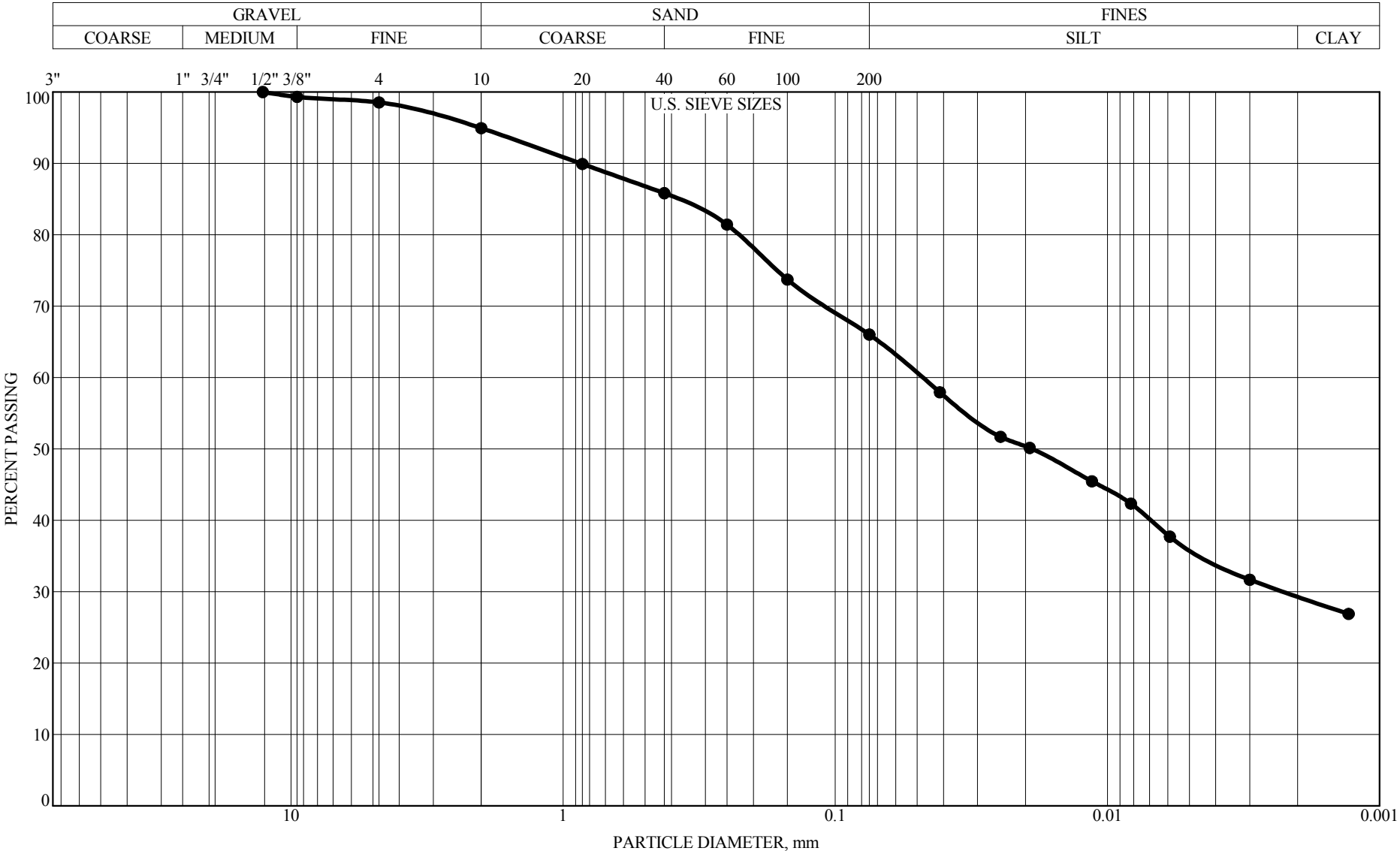
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-74 DEPTH: 6.0'-10.0'

GRAVEL	8.9%
SAND	29.3%
SILT	40.4%
CLAY	21.5%

CLASSIFICATION:
A-6 (10), black
SANDY LEAN CLAY(CL)

LL=39, PL=19, PI=20, P200=61.9%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

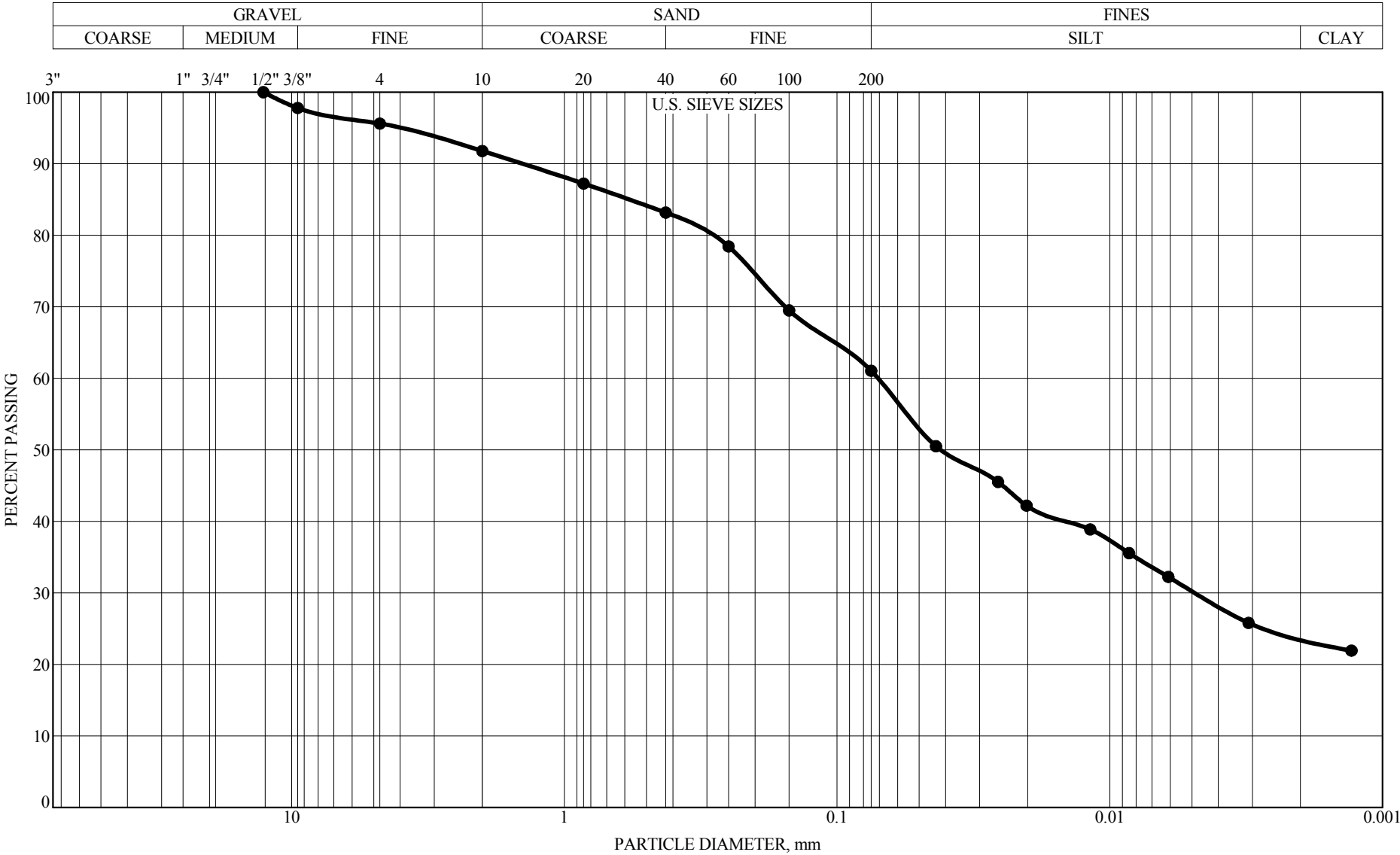


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-75 DEPTH: 1.0'-10.0'

GRAVEL 5.1%
SAND 28.9%
SILT 36.7%
CLAY 29.4%

CLASSIFICATION:
A-7-6 (15), brown
SANDY LEAN CLAY(CL)
LL=43, PL=17, PI=26, P200=66.1%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

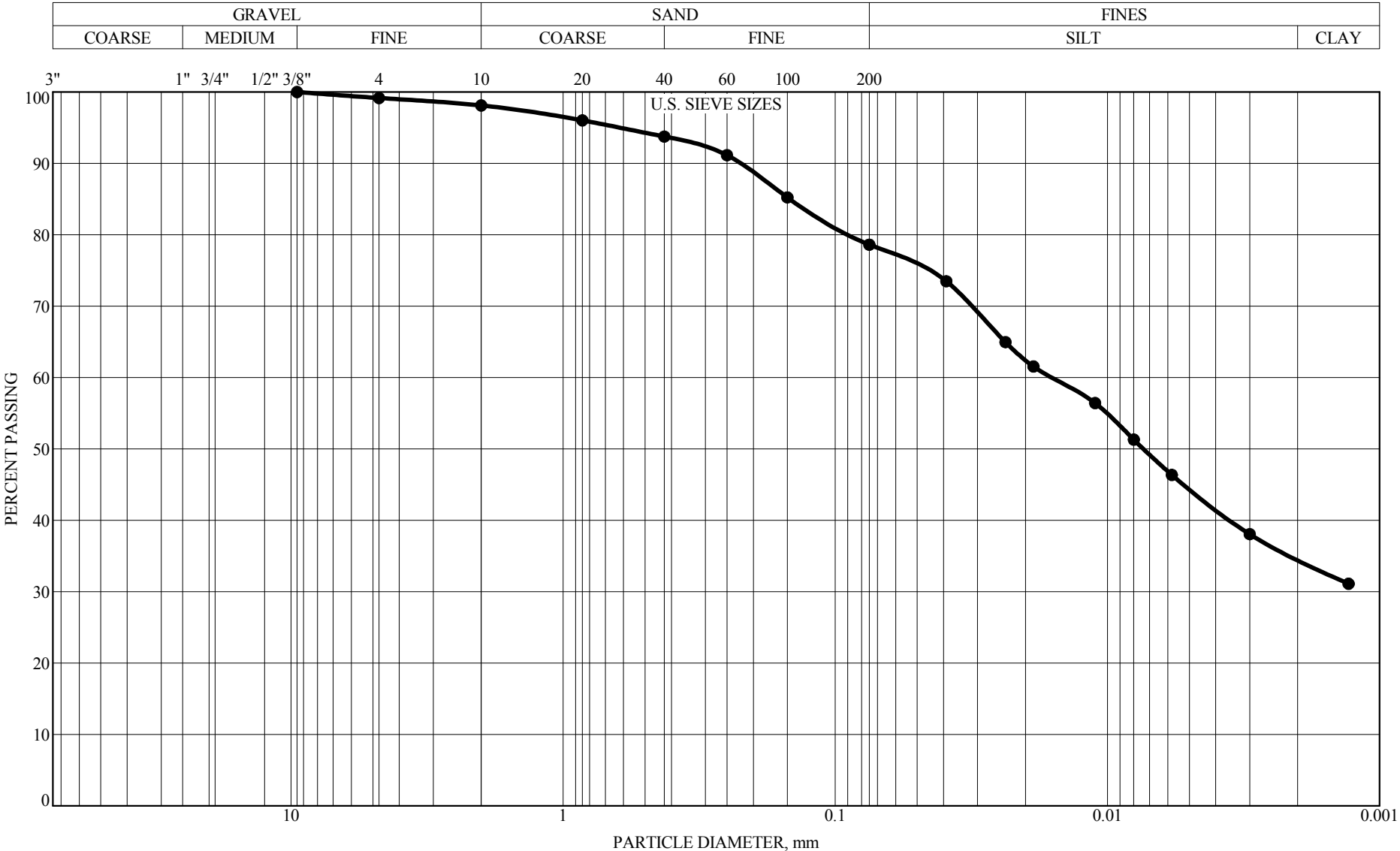


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-76 DEPTH: 0.9'-10.0'

GRAVEL 8.2%
SAND 30.7%
SILT 37.2%
CLAY 23.9%

CLASSIFICATION:
A-6 (11), brown
SANDY LEAN CLAY(CL)
LL=39, PL=16, PI=23, P200=61.1%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

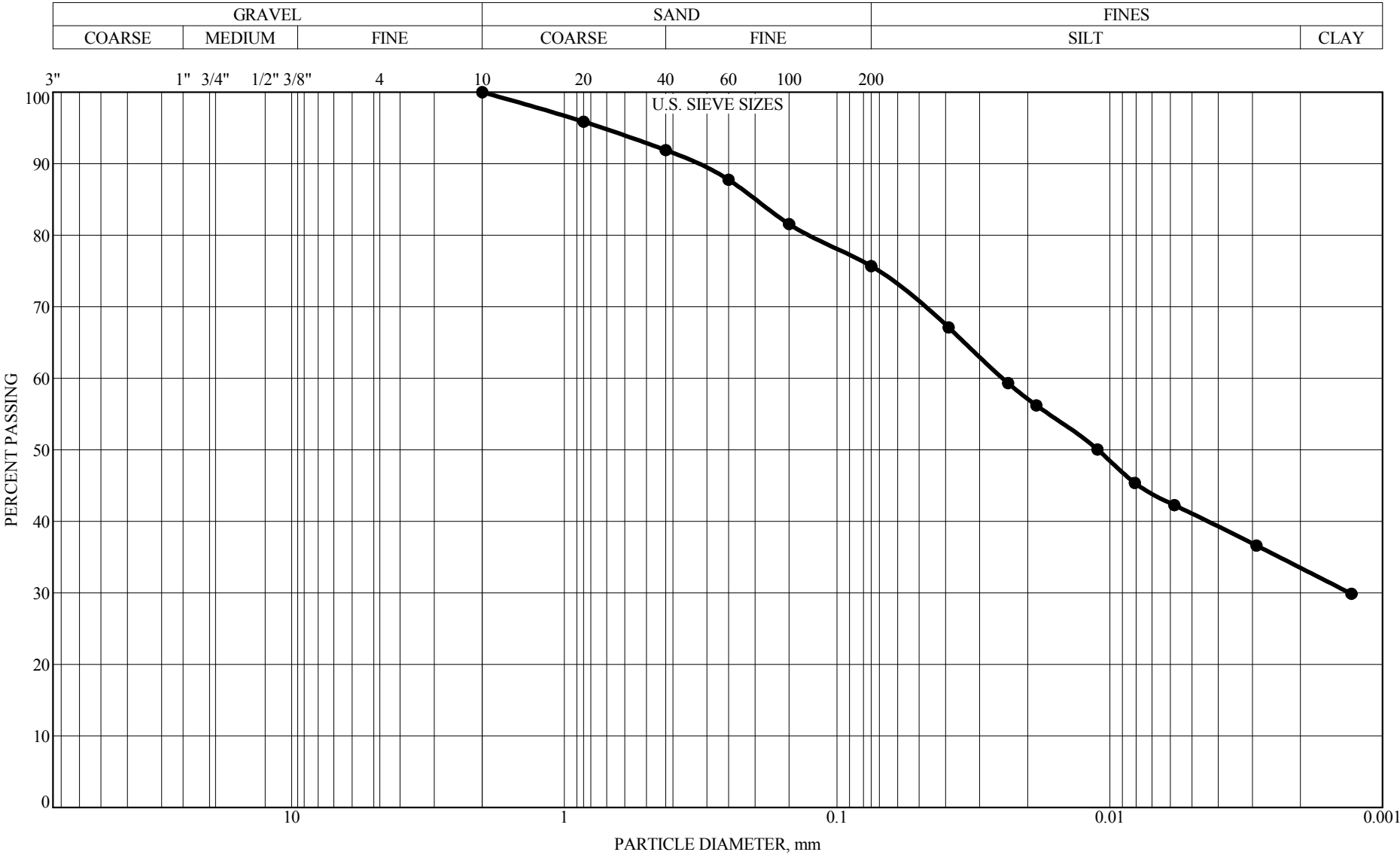


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-77 DEPTH: 1.1'-10.0'

GRAVEL 1.9%
SAND 19.5%
SILT 43.9%
CLAY 34.7%

CLASSIFICATION:
A-7-6 (21), brown
LEAN CLAY with SAND(CL)
LL=45, PL=17, PI=28, P200=78.6%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



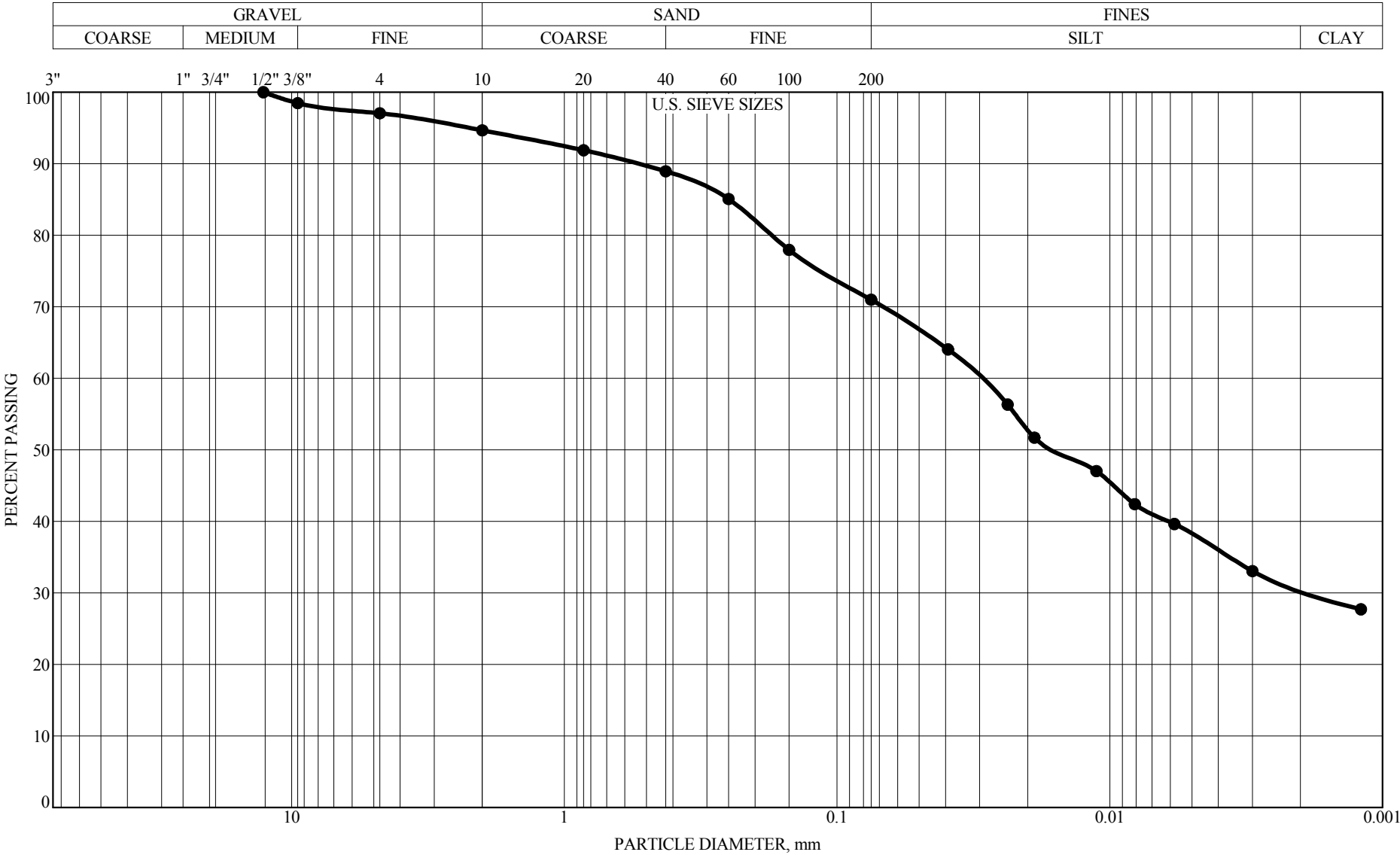
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-78 DEPTH: 0.8'-10.0'

GRAVEL 0.0%
SAND 24.3%
SILT 42.2%
CLAY 33.5%

CLASSIFICATION:
A-7-6 (19), brown
LEAN CLAY with SAND(CL)

LL=44, PL=17, PI=27, P200=75.7%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



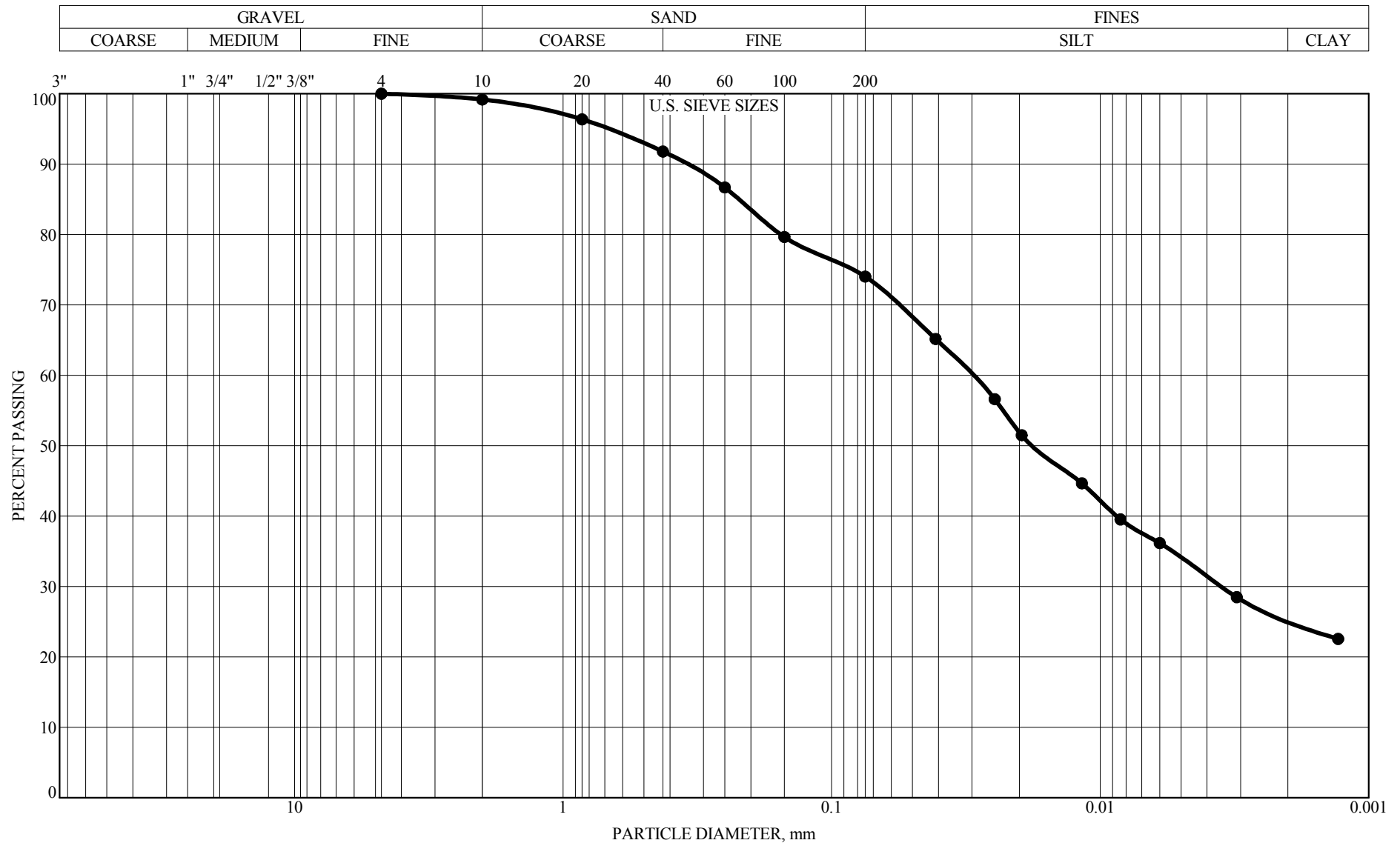
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-79 DEPTH: 0.9'-4.0'

GRAVEL 5.3%
SAND 23.7%
SILT 40.3%
CLAY 30.7%

CLASSIFICATION:
A-7-6 (19), brown
LEAN CLAY with SAND(CL)

LL=44, PL=15, PI=29, P200=71.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



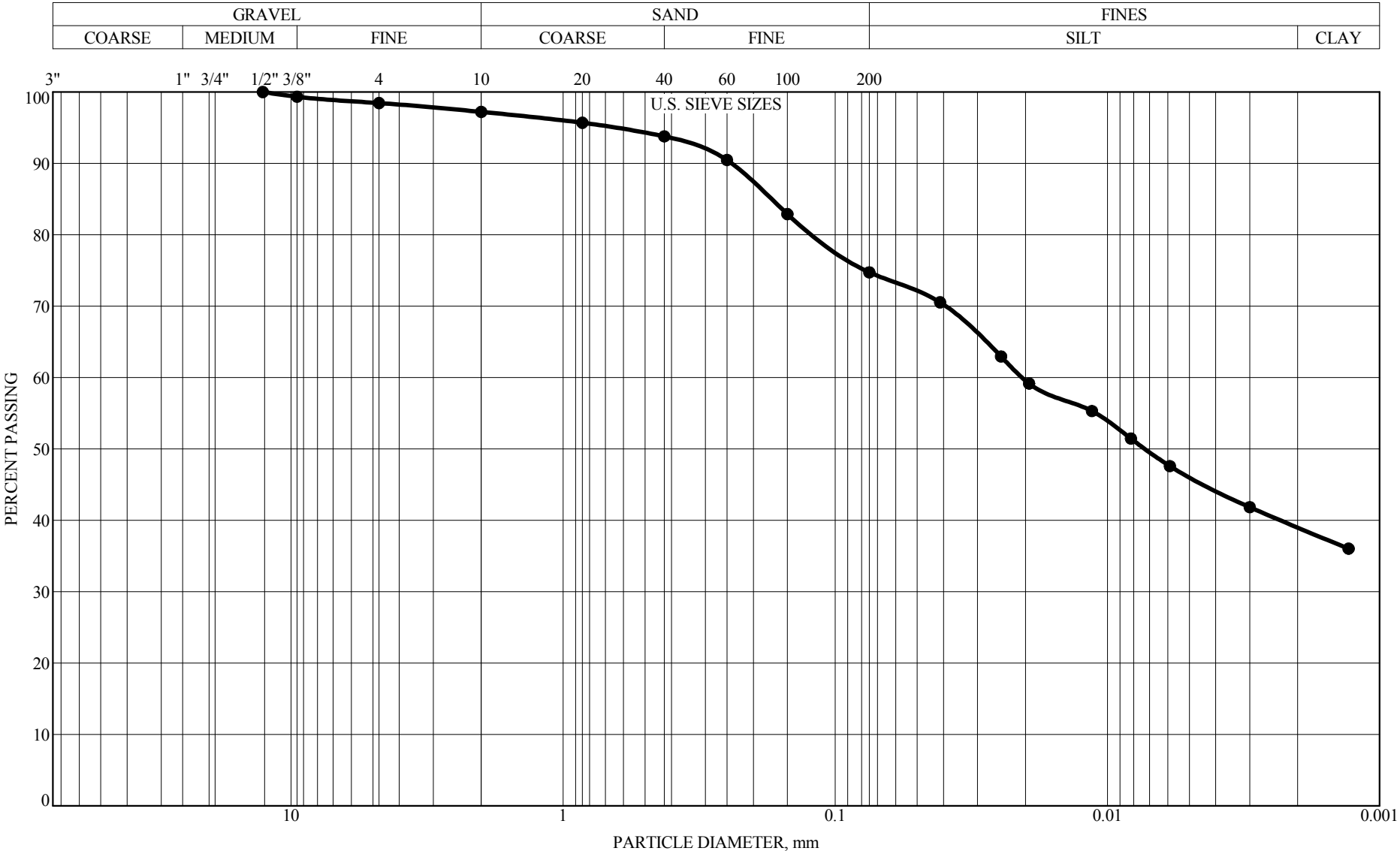
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Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-79 DEPTH: 4.0'-10.0'

GRAVEL	0.8%
SAND	25.1%
SILT	48.5%
CLAY	25.5%

CLASSIFICATION:
A-7-6 (16), black to brown
LEAN CLAY with SAND(CL)
LL=43, PL=20, PI=23, P200=74.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

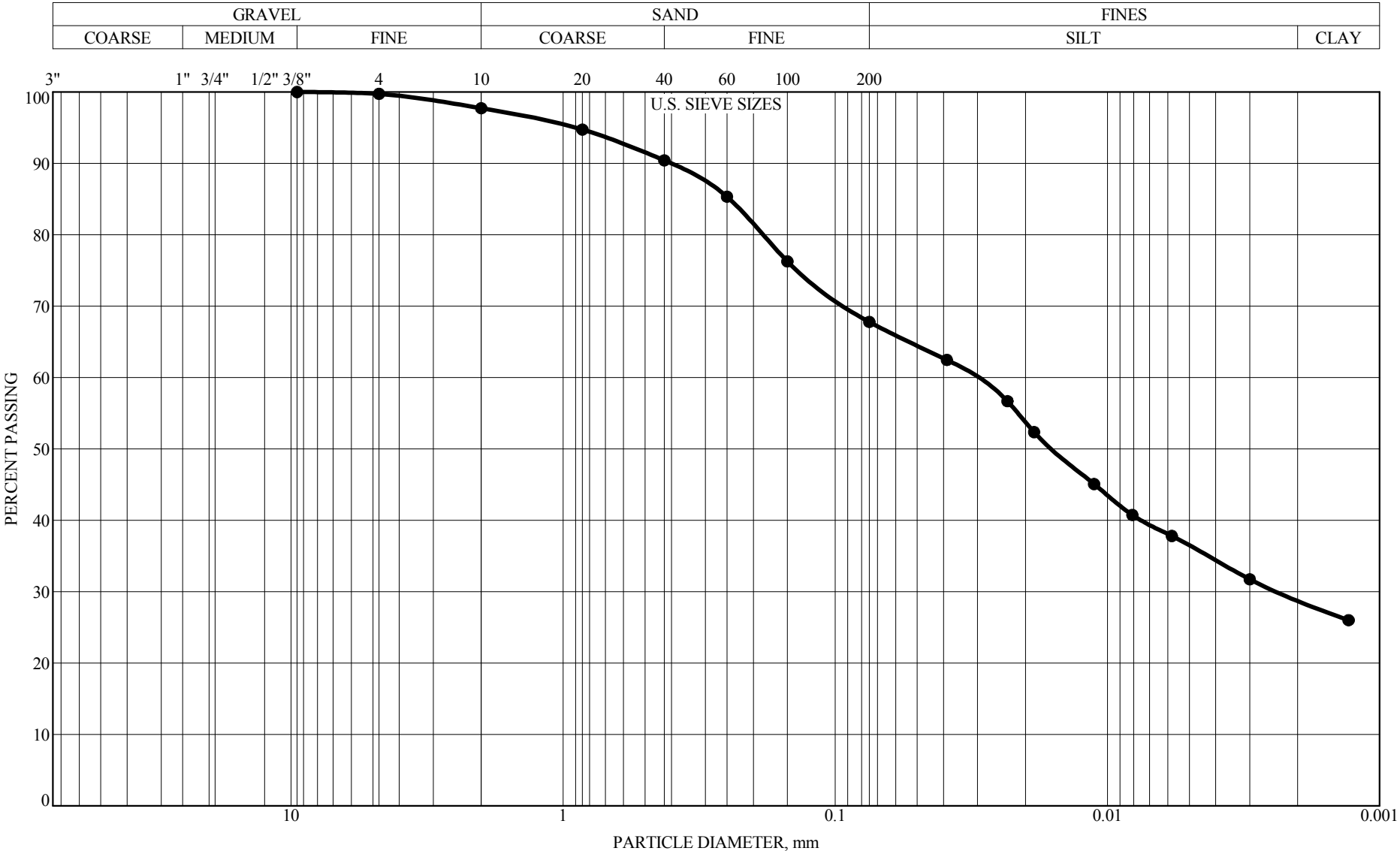


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-80 DEPTH: 0.8'-10.0'

GRAVEL 2.8%
SAND 22.5%
SILT 35.7%
CLAY 39.0%

CLASSIFICATION:
A-7-6 (23), brown
LEAN CLAY with SAND(CL)
LL=49, PL=17, PI=32, P200=74.7%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

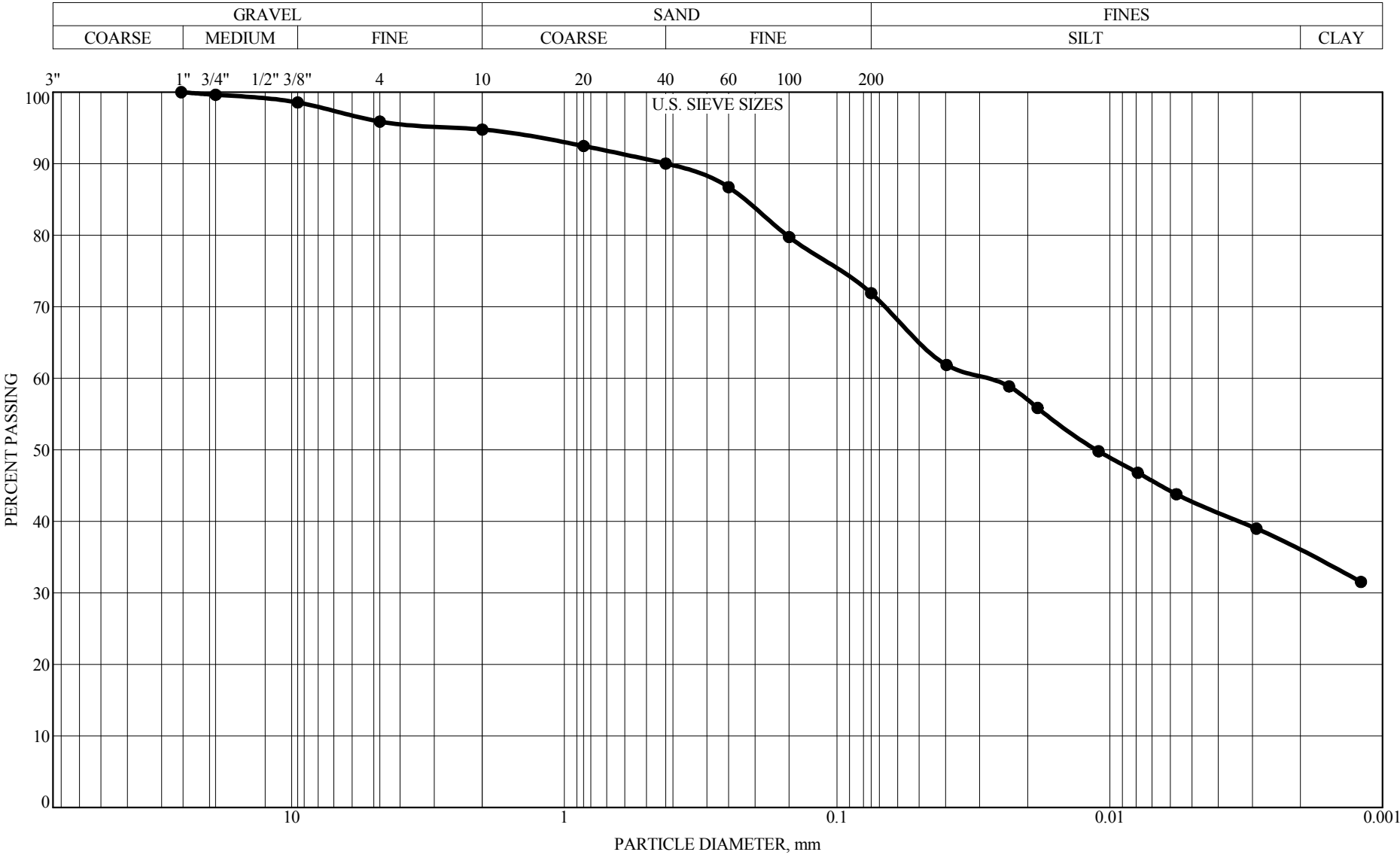


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-81 DEPTH: 0.9'-10.0'

GRAVEL 2.3%
SAND 29.9%
SILT 38.8%
CLAY 29.0%

CLASSIFICATION:
A-7-6 (15), brown
SANDY LEAN CLAY(CL)
LL=43, PL=18, PI=25, P200=67.8%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



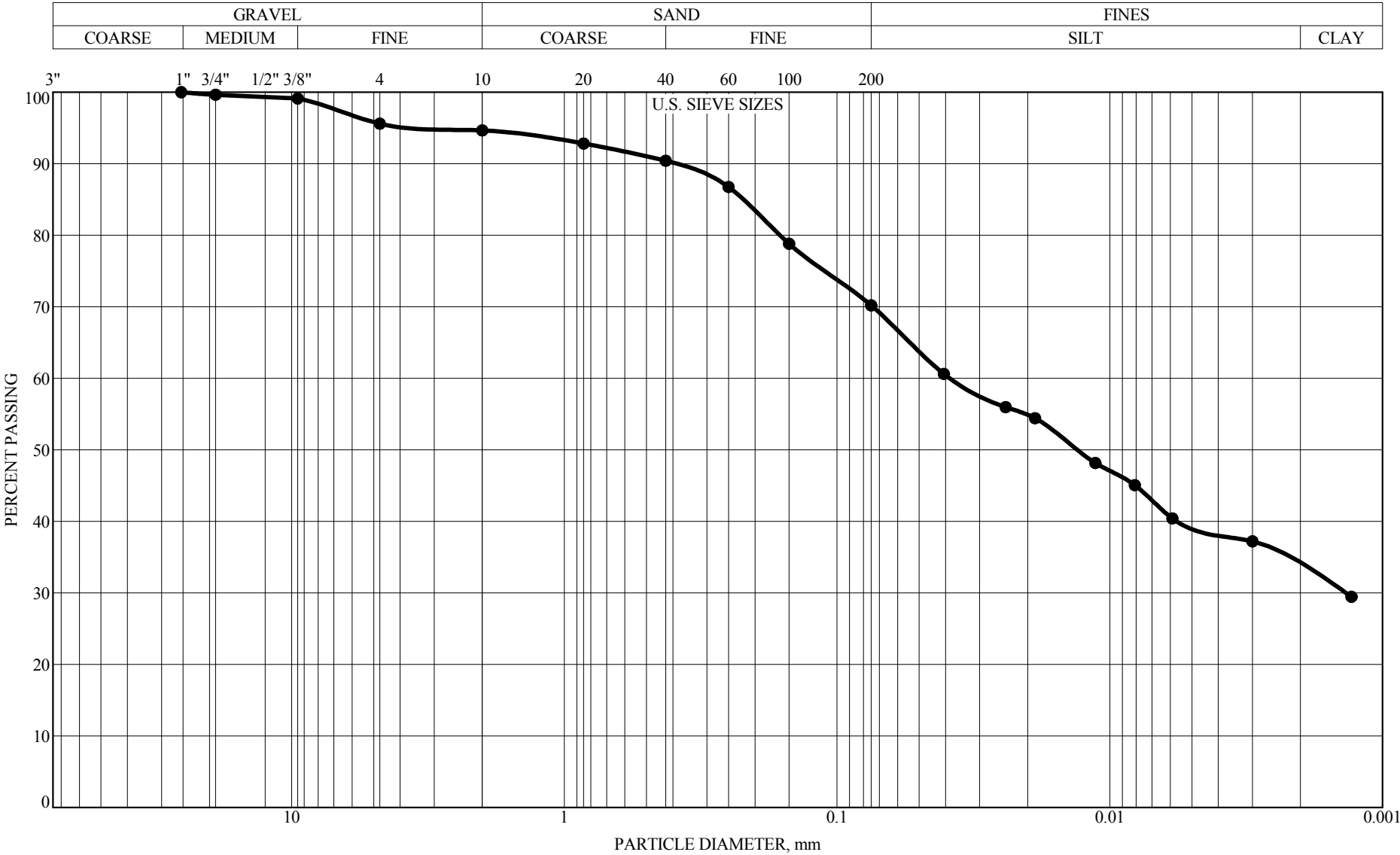
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-82 DEPTH: 1.0'-7.0'

GRAVEL 5.2%
SAND 22.9%
SILT 36.1%
CLAY 35.9%

CLASSIFICATION:
A-7-6 (20), brown
LEAN CLAY with SAND(CL)

LL=48, PL=18, PI=30, P200=72.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



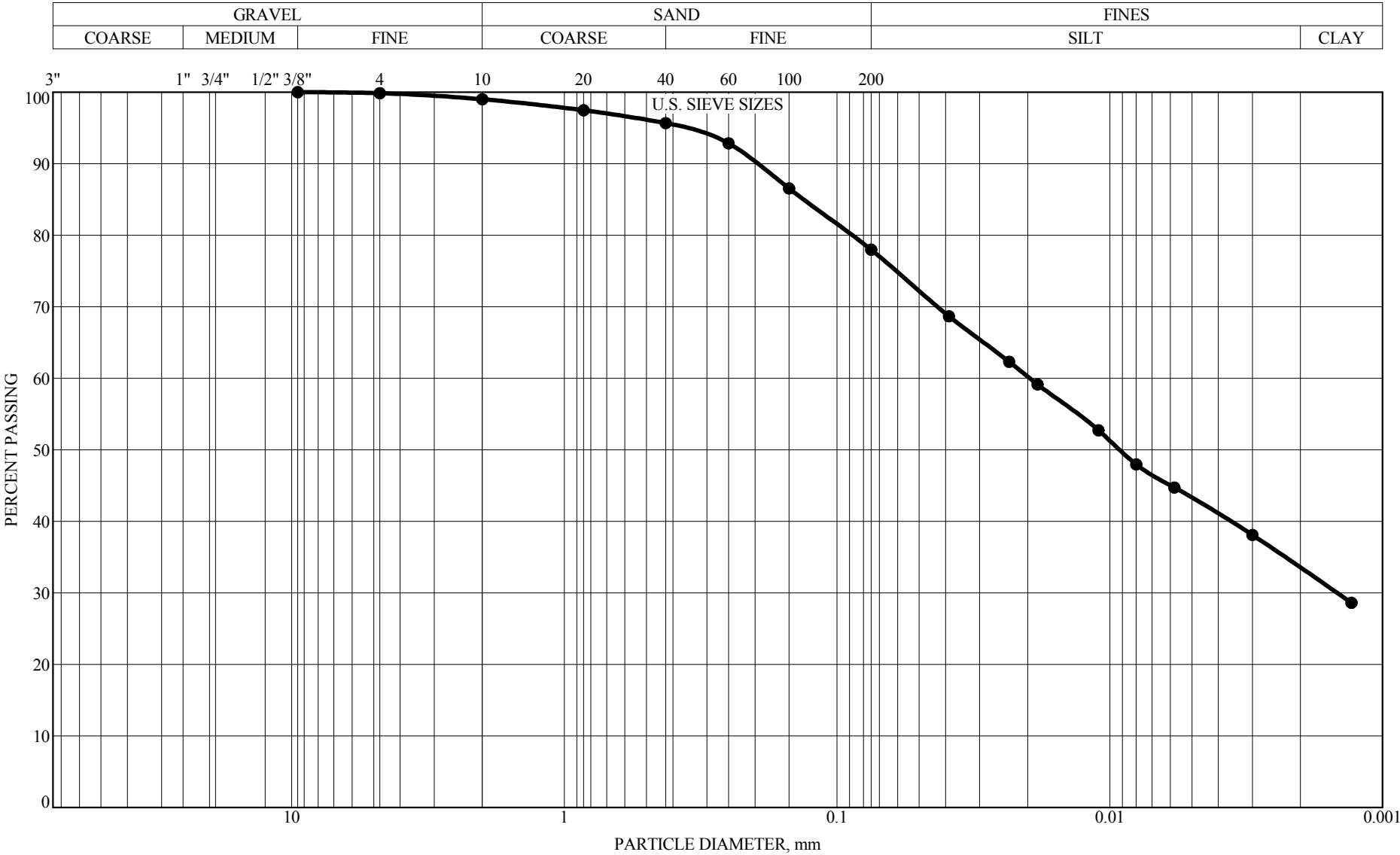
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-83 DEPTH: 1.0'-10.0'

GRAVEL 5.3%
SAND 24.5%
SILT 36.7%
CLAY 33.5%

CLASSIFICATION:
A-7-6 (19), brown
LEAN CLAY with SAND(CL)

LL=47, PL=17, PI=30, P200=70.2%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



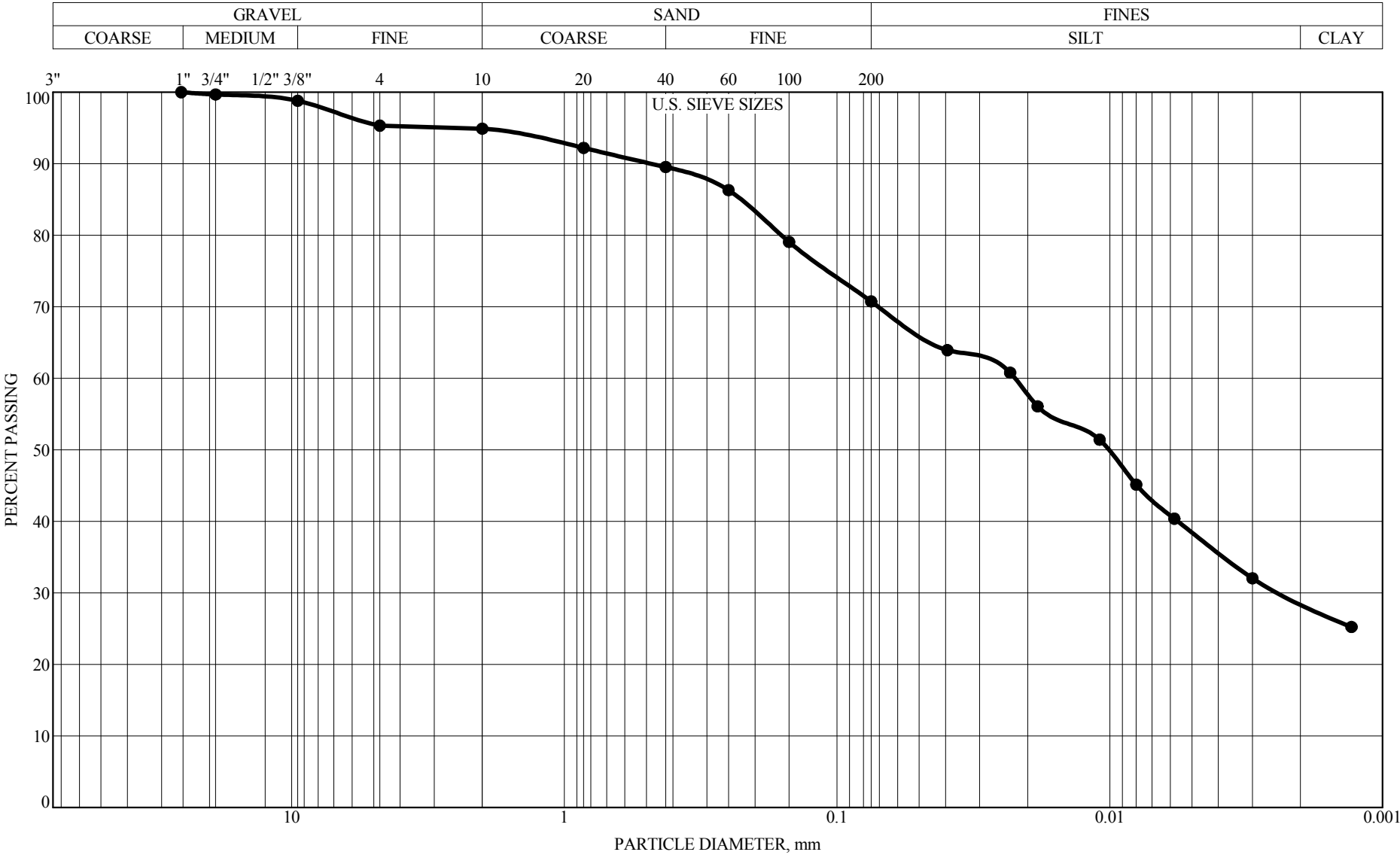
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-84 DEPTH: 0.9'-7.0'

GRAVEL 1.0%
SAND 21.0%
SILT 44.5%
CLAY 33.5%

CLASSIFICATION:
A-7-6 (22), brown
LEAN CLAY with SAND(CL)

LL=45, PL=16, PI=29, P200=78.0%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



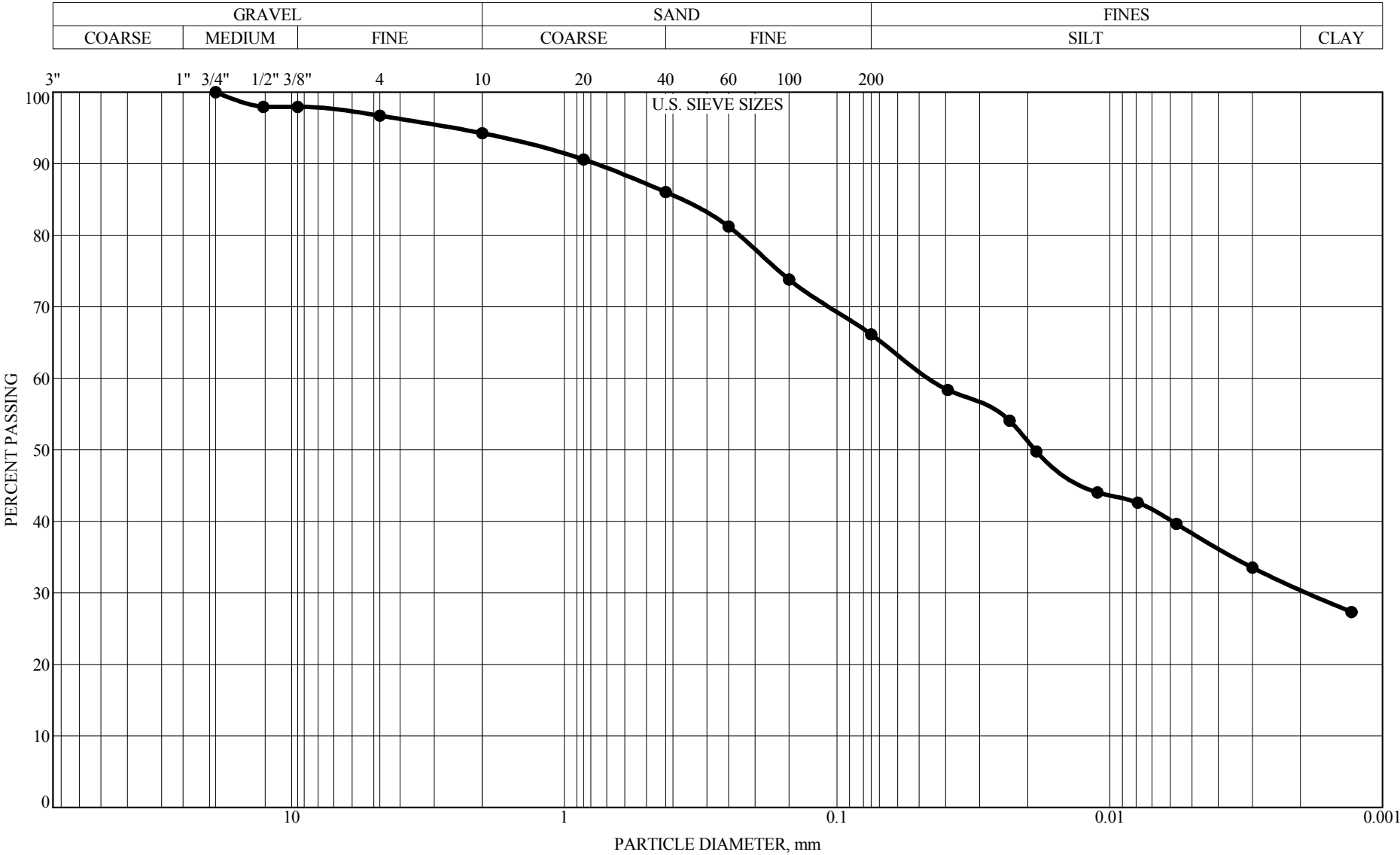
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-85 DEPTH: 0.9'-10.0'

GRAVEL 5.1%
SAND 24.2%
SILT 42.0%
CLAY 28.7%

CLASSIFICATION:
A-7-6 (18), brown
LEAN CLAY with SAND(CL)

LL=44, PL=16, PI=28, P200=70.7%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



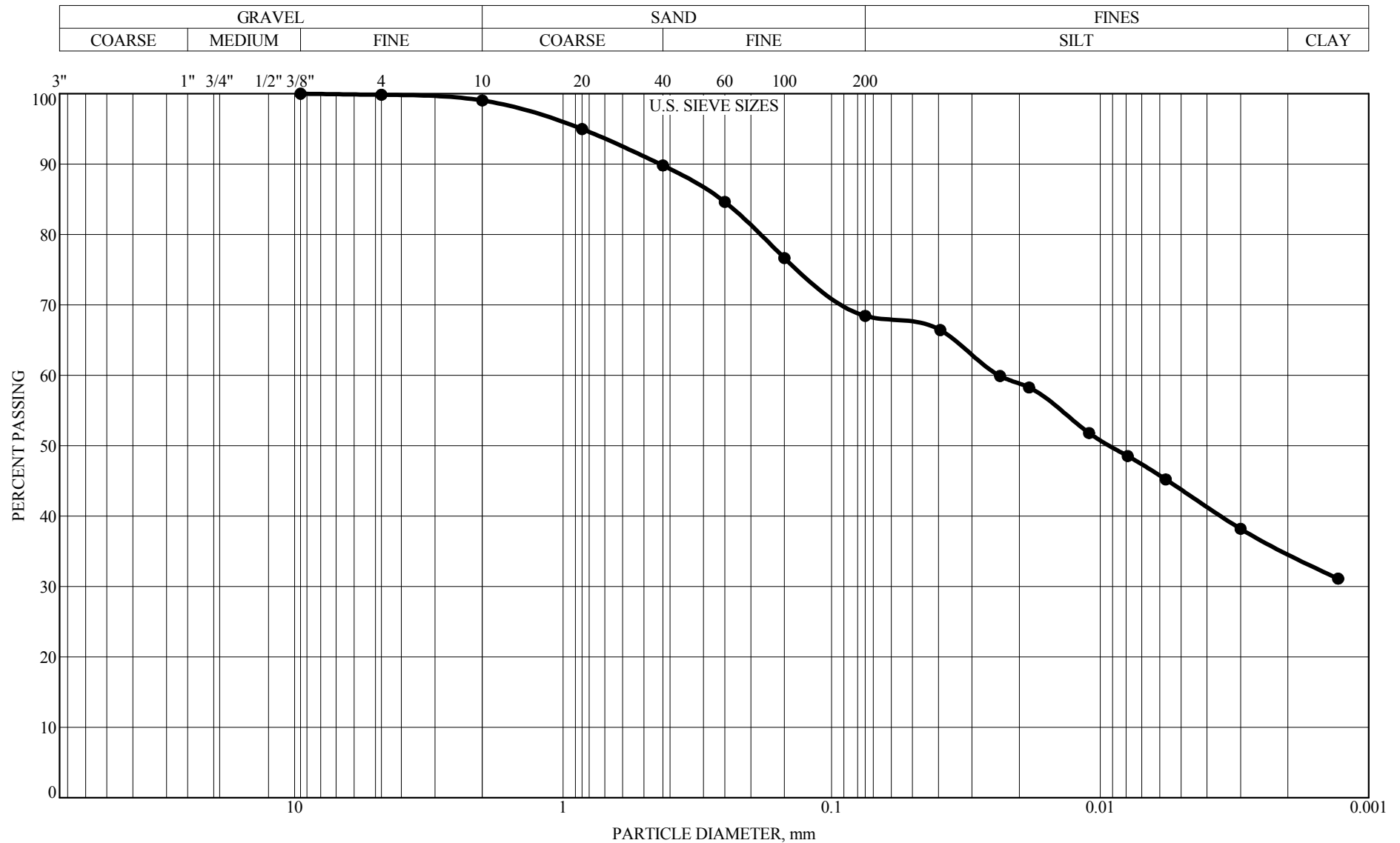
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-86 DEPTH: 1.0'-10.0'

GRAVEL	5.7%
SAND	28.1%
SILT	35.6%
CLAY	30.5%

CLASSIFICATION:
A-7-6 (15), brown
SANDY LEAN CLAY(CL)

LL=41, PL=14, PI=27, P200=66.1%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



Braun Project BM-13-05525

Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota

BORING: LSS-87 DEPTH: 1.0'-10.0'

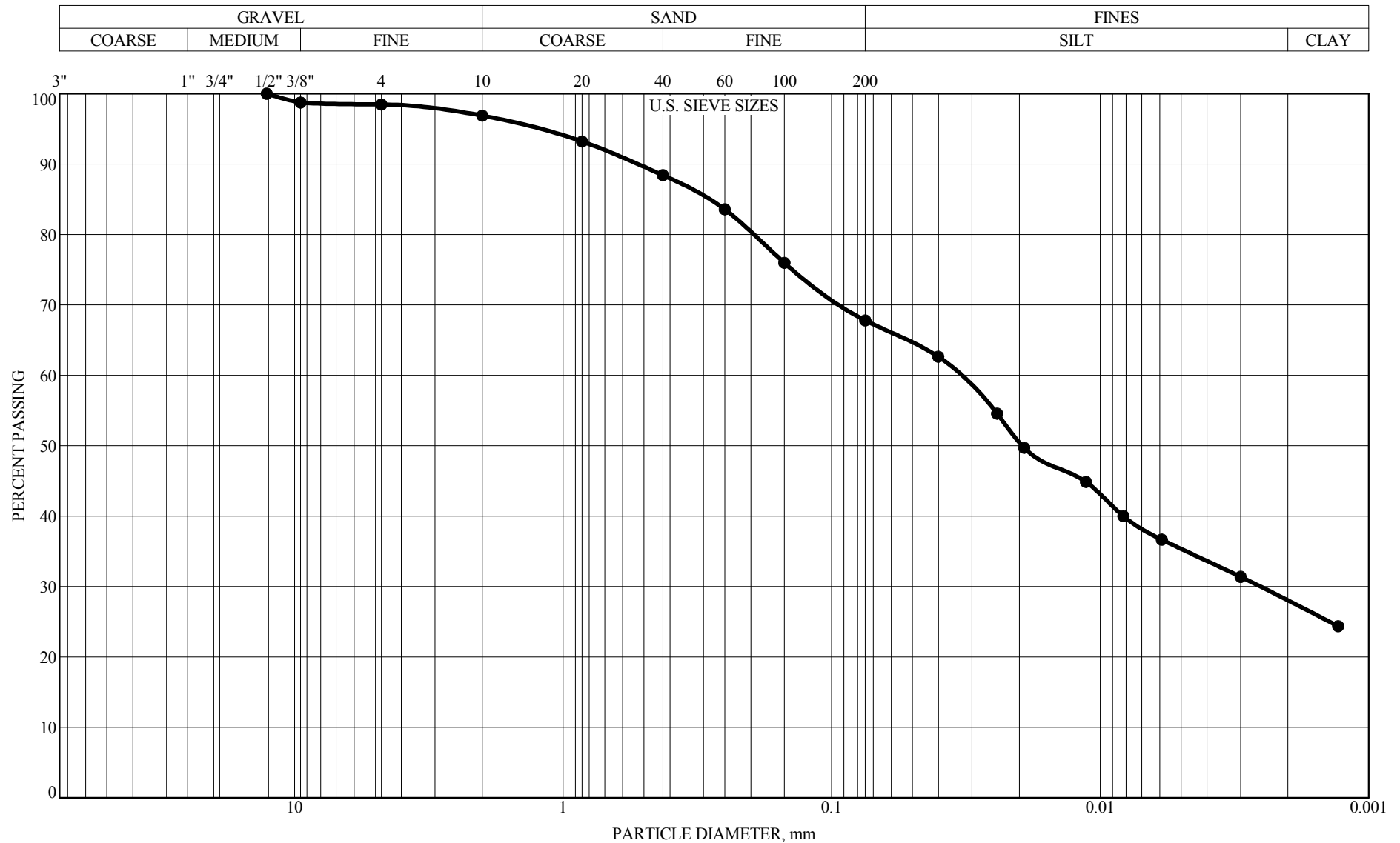
GRAVEL	1.0%
SAND	30.6%
SILT	33.7%
CLAY	34.8%

CLASSIFICATION:

A-7-6 (19), brown
 SANDY LEAN CLAY(CL)

LL=47, PL=15, PI=32, P200=68.5%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



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Braun Project BM-13-05525

**Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota**

BORING: LSS-88 DEPTH: 0.9'-10.0'

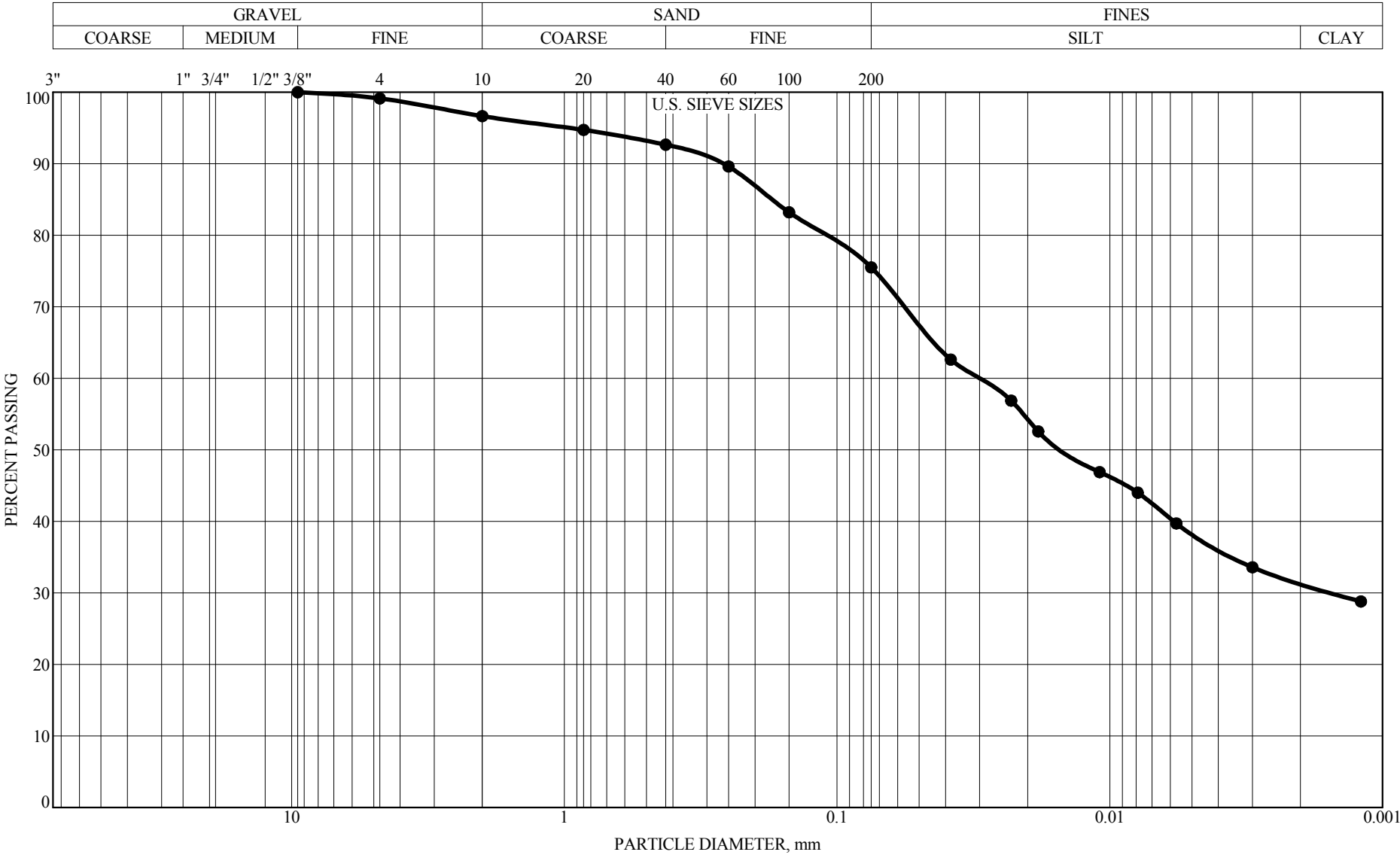
GRAVEL	3.1%
SAND	29.1%
SILT	39.8%
CLAY	28.0%

CLASSIFICATION:

A-6 (13), brown
SANDY LEAN CLAY(CL)

LL=36, PL=13, PI=23, P200=67.8%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



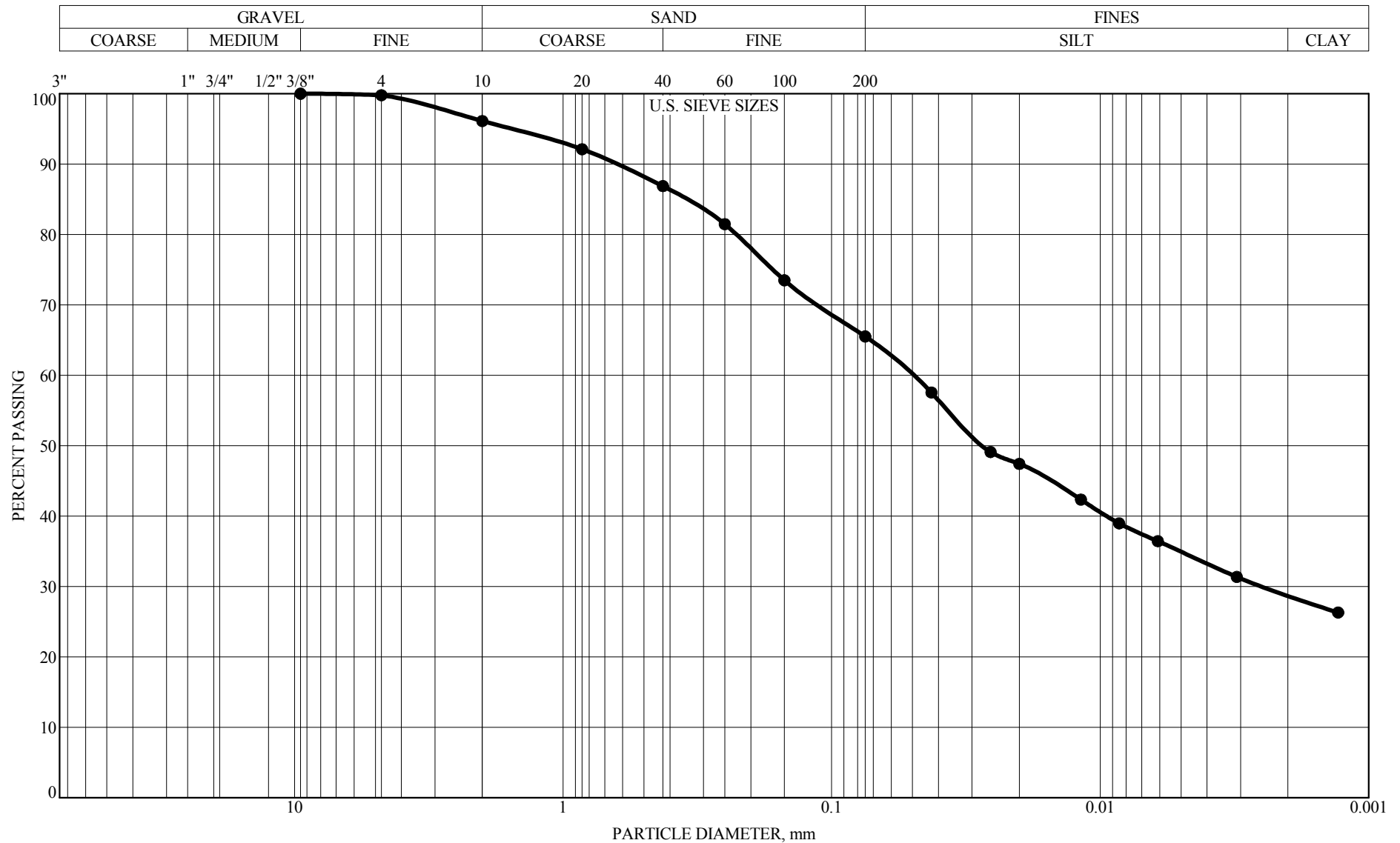
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-89 DEPTH: 0.9'-10.0'

GRAVEL	3.3%
SAND	21.1%
SILT	44.1%
CLAY	31.5%

CLASSIFICATION:
A-7-6 (20), brown
LEAN CLAY with SAND(CL)

LL=44, PL=16, PI=28, P200=75.6%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



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Braun Project BM-13-05525

**Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota**

BORING: LSS-90 DEPTH: 1.1'-10.0'

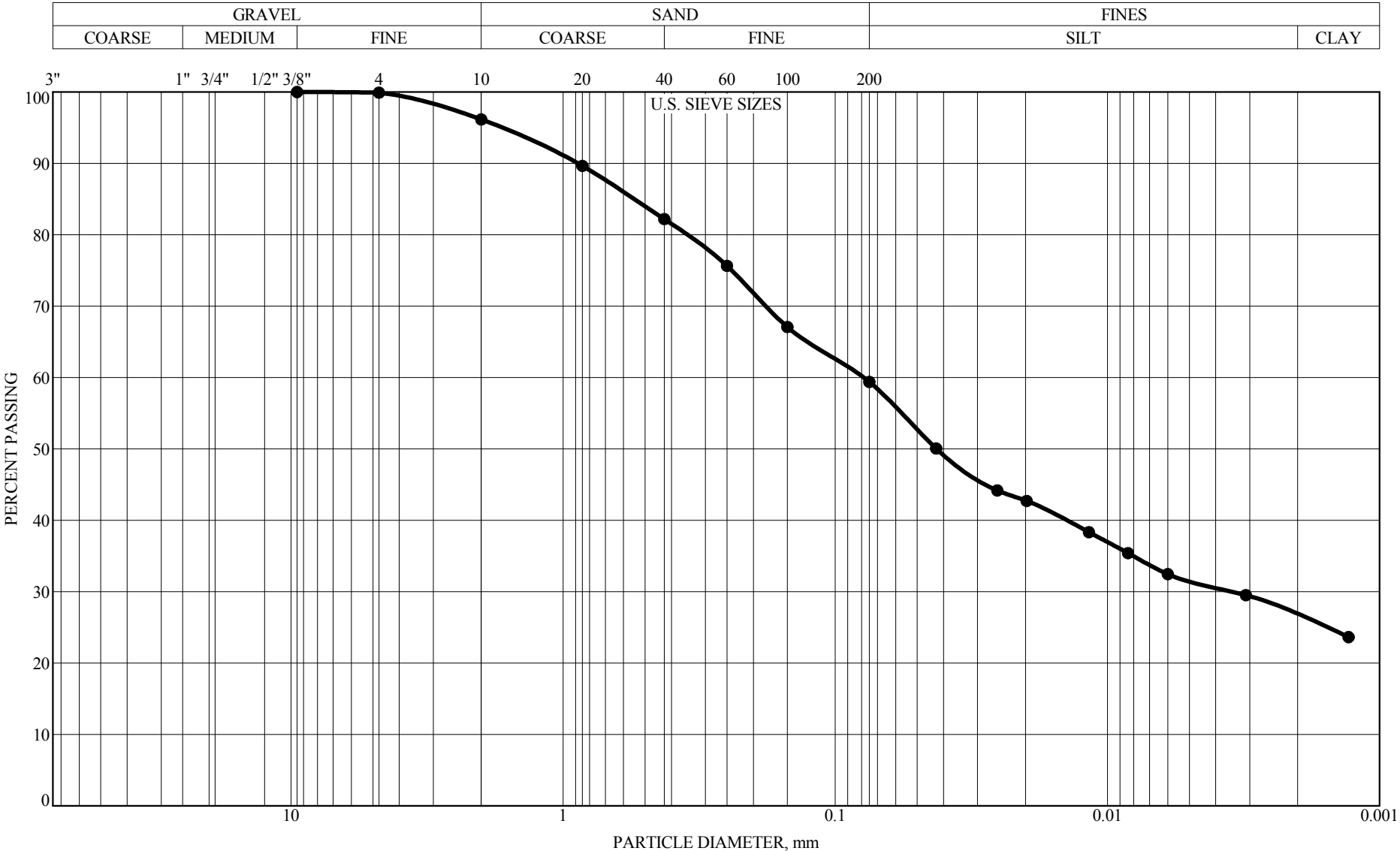
GRAVEL	3.9%
SAND	30.6%
SILT	36.7%
CLAY	28.8%

CLASSIFICATION:

A-6 (14), brown
SANDY LEAN CLAY(CL)

LL=40, PL=15, PI=25, P200=65.5%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

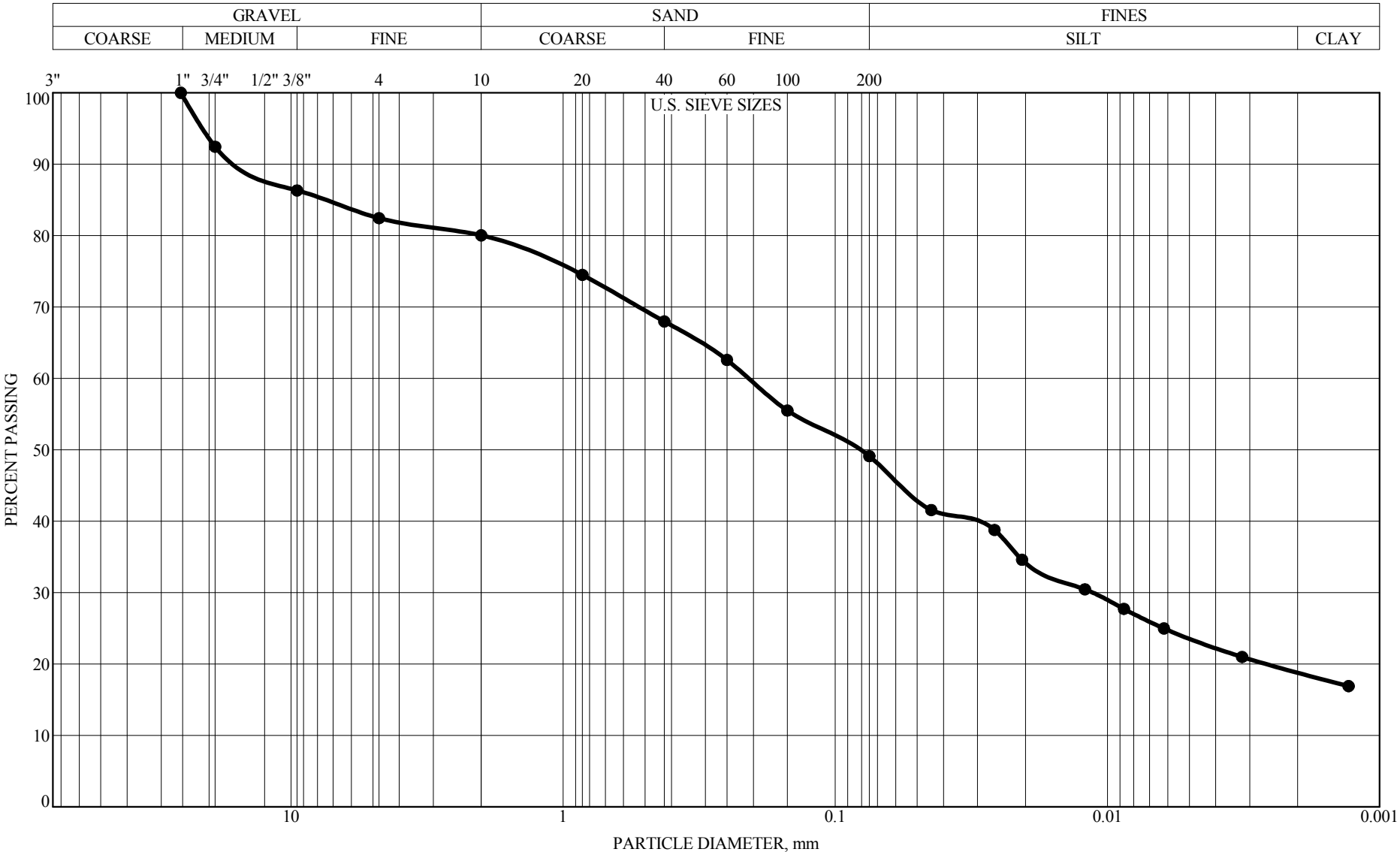


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-91 DEPTH: 0.9'-4.0'

GRAVEL 3.8%
SAND 36.8%
SILT 32.8%
CLAY 26.6%

CLASSIFICATION:
A-6 (11), brown
SANDY LEAN CLAY(CL)
LL=39, PL=14, PI=25, P200=59.4%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

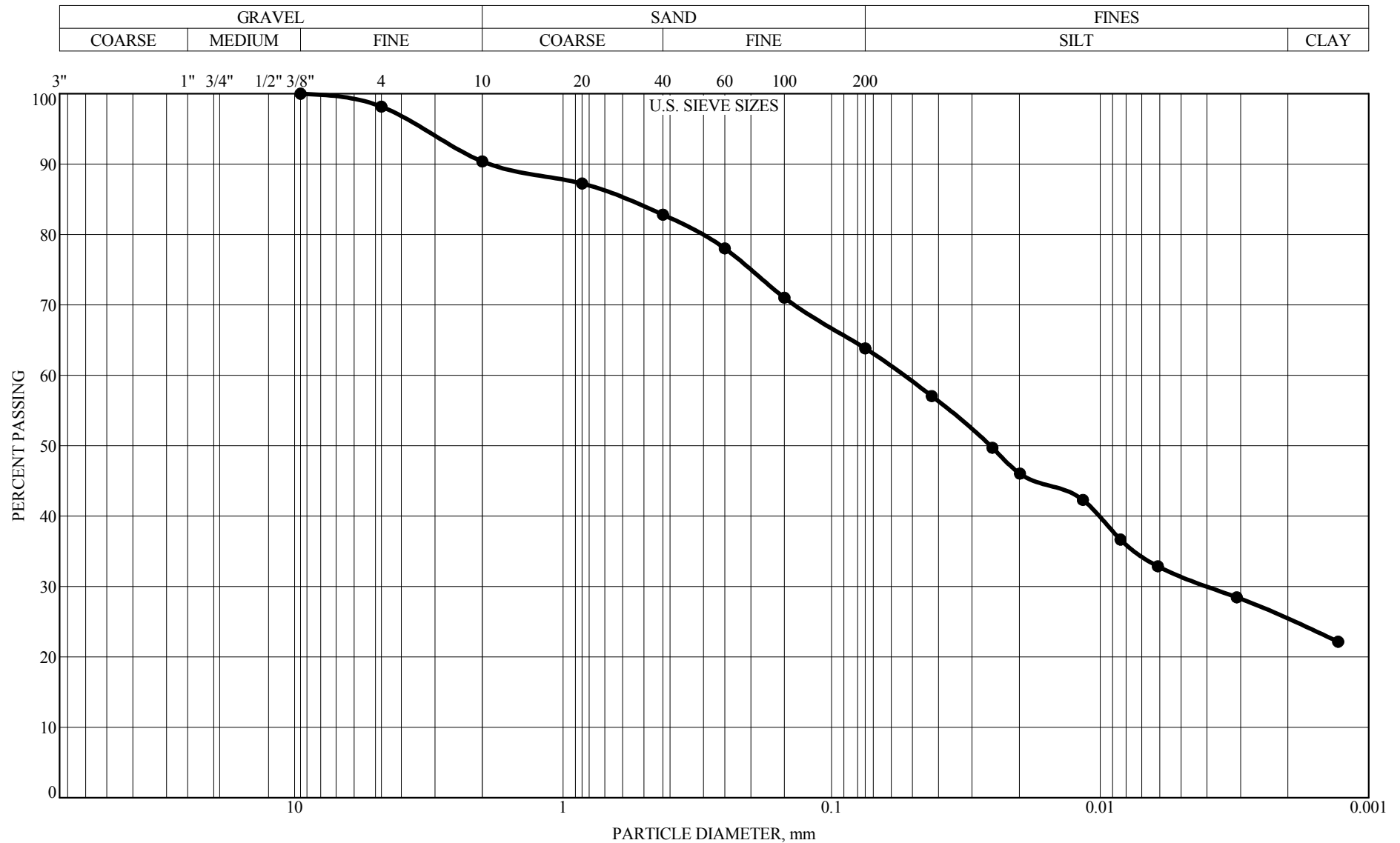


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-91 DEPTH: 4.0'-10.0'

GRAVEL 20.0%
SAND 30.9%
SILT 30.3%
CLAY 18.9%

CLASSIFICATION:
A-6 (6), brown
CLAYEY SAND with GRAVEL(SC)
LL=34, PL=14, PI=20, P200=49.2%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUNSM
INTERTEC

Braun Project BM-13-05525

Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota

BORING: LSS-92 DEPTH: 1.0'-10.0'

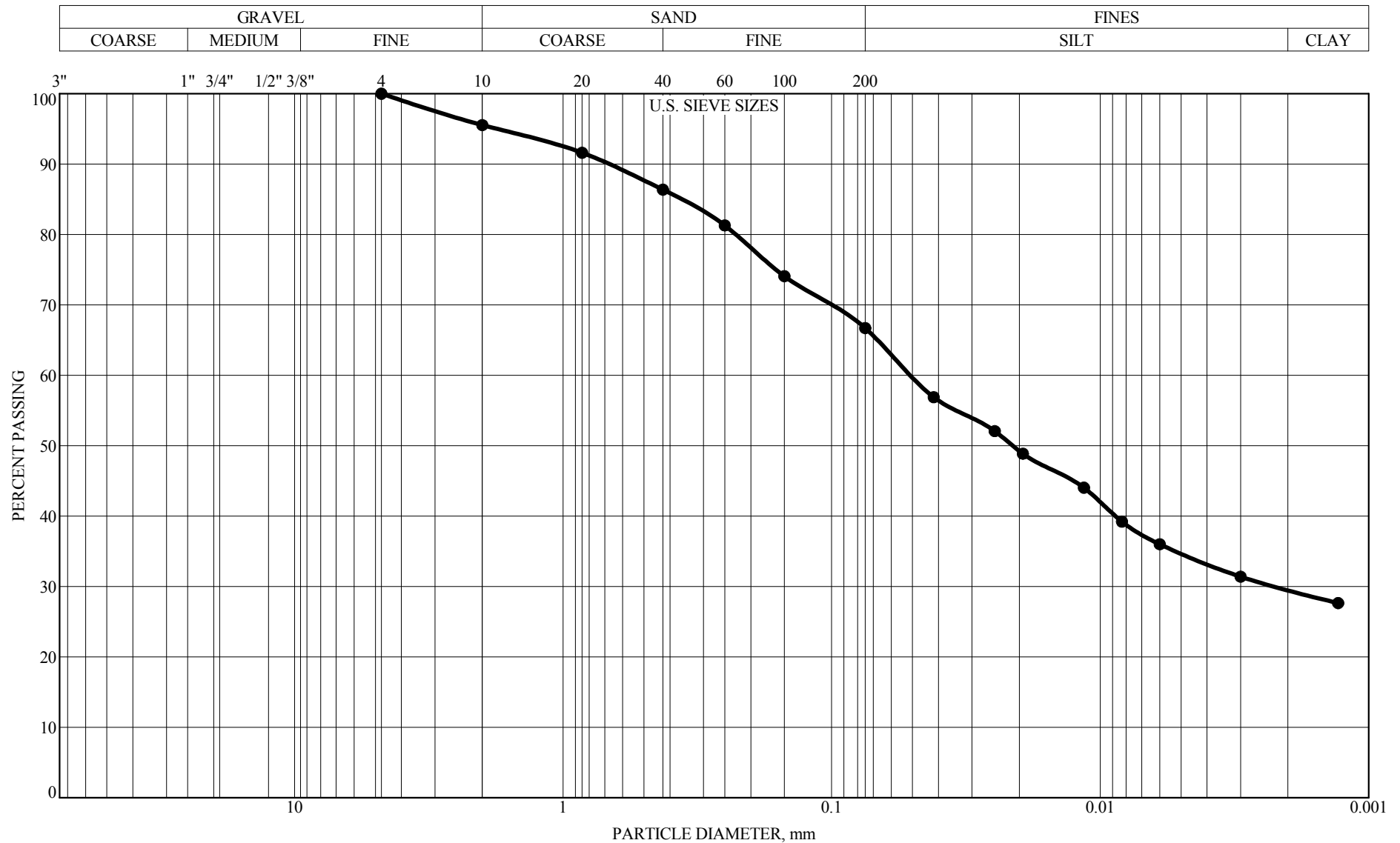
GRAVEL	9.6%
SAND	26.5%
SILT	38.5%
CLAY	25.3%

CLASSIFICATION:

A-6 (13), brown
SANDY LEAN CLAY(CL)

LL=40, PL=16, PI=24, P200=63.8%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUNSM
INTERTEC

Braun Project BM-13-05525

**Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota**

BORING: LSS-93 DEPTH: 1.0'-10.0'

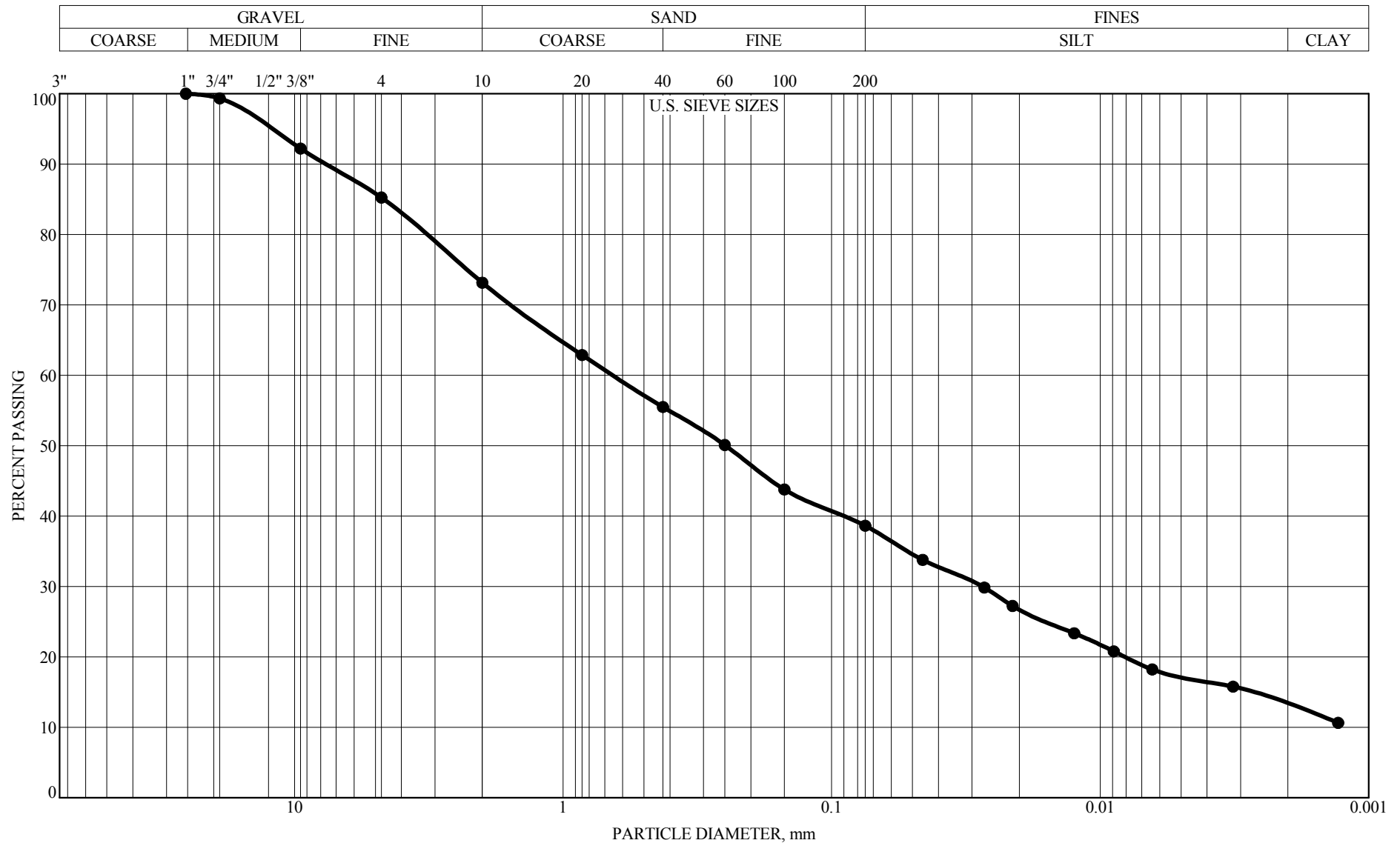
GRAVEL	4.5%
SAND	28.8%
SILT	37.1%
CLAY	29.6%

CLASSIFICATION:

A-7-6 (15), brown
SANDY LEAN CLAY(CL)

LL=41, PL=15, PI=26, P200=66.7%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUNSM
INTERTEC

Braun Project BM-13-05525

Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota

BORING: LSS-94 DEPTH: 2.0'-4.0'

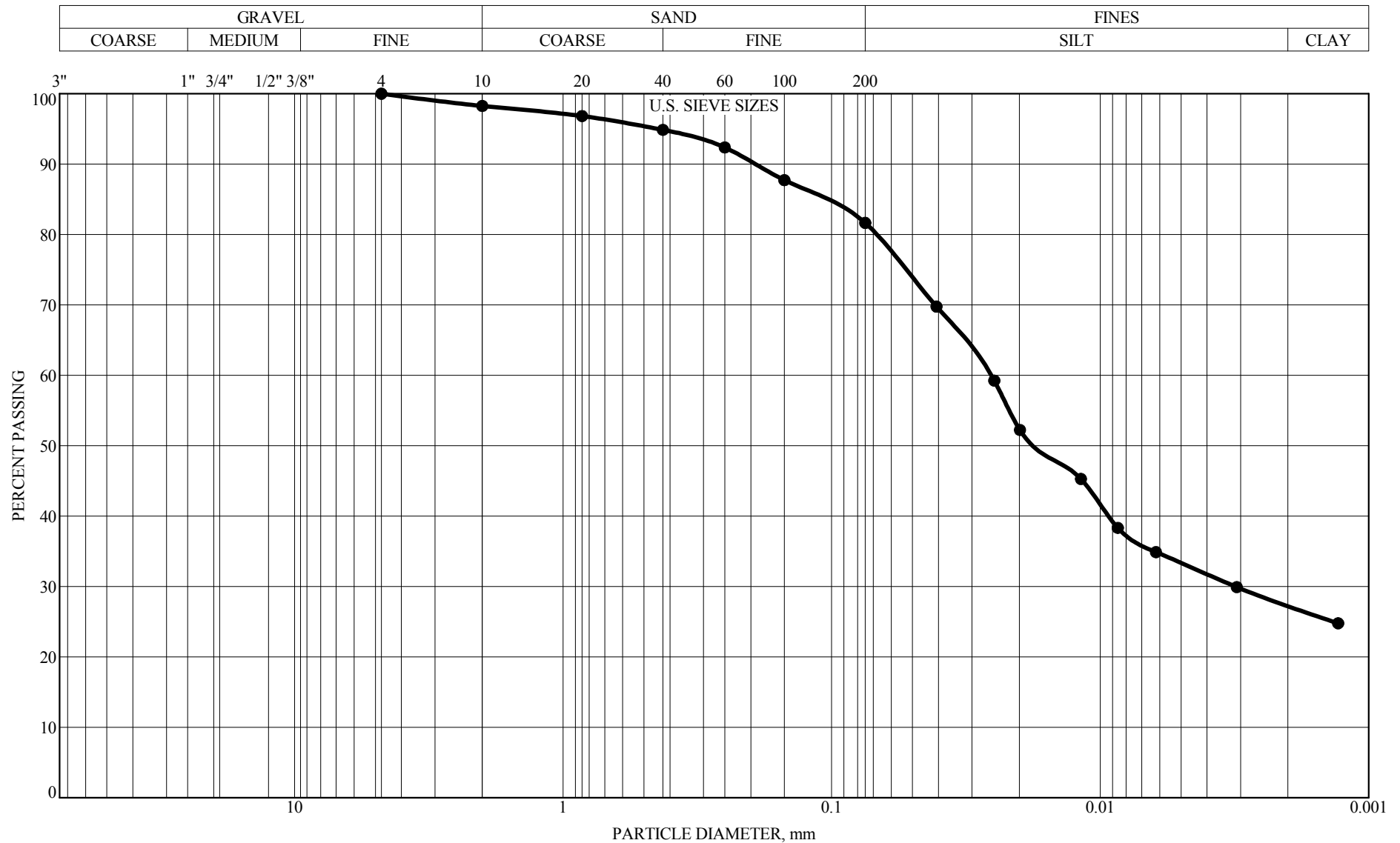
GRAVEL	26.8%
SAND	34.5%
SILT	25.5%
CLAY	13.1%

CLASSIFICATION:

A-6 (1), brown
CLAYEY SAND(SC)

LL=27, PL=14, PI=13, P200=38.6%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUNSM
INTERTEC

Braun Project BM-13-05525

Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota

BORING: LSS-94 DEPTH: 4.0'-10.0'

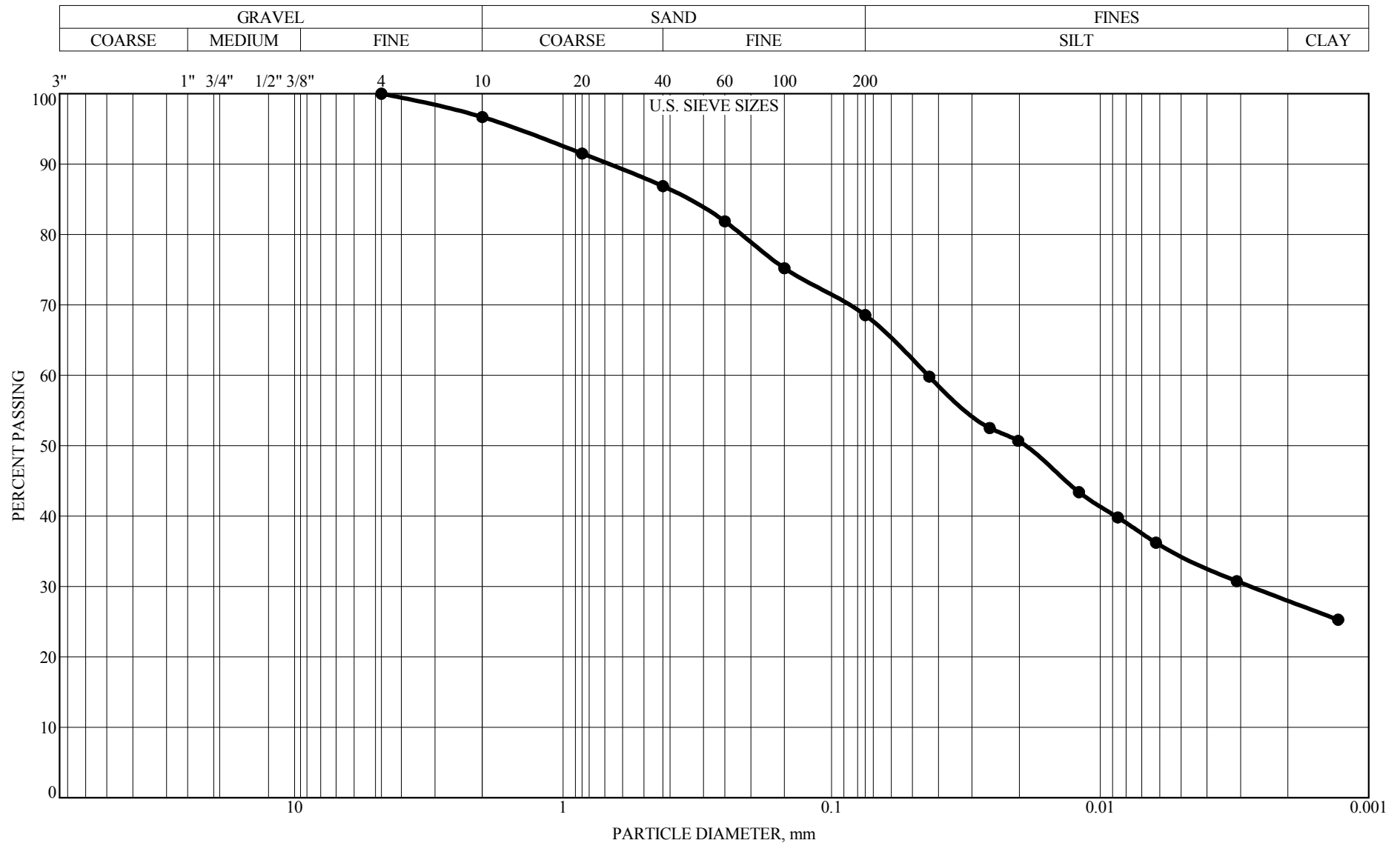
GRAVEL	1.7%
SAND	16.6%
SILT	54.3%
CLAY	27.3%

CLASSIFICATION:

A-6 (16), brown
LEAN CLAY with SAND(CL)

LL=37, PL=16, PI=21, P200=81.6%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUNSM
INTERTEC

Braun Project BM-13-05525

Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota

BORING: LSS-95 DEPTH: 1.0'-10.0'

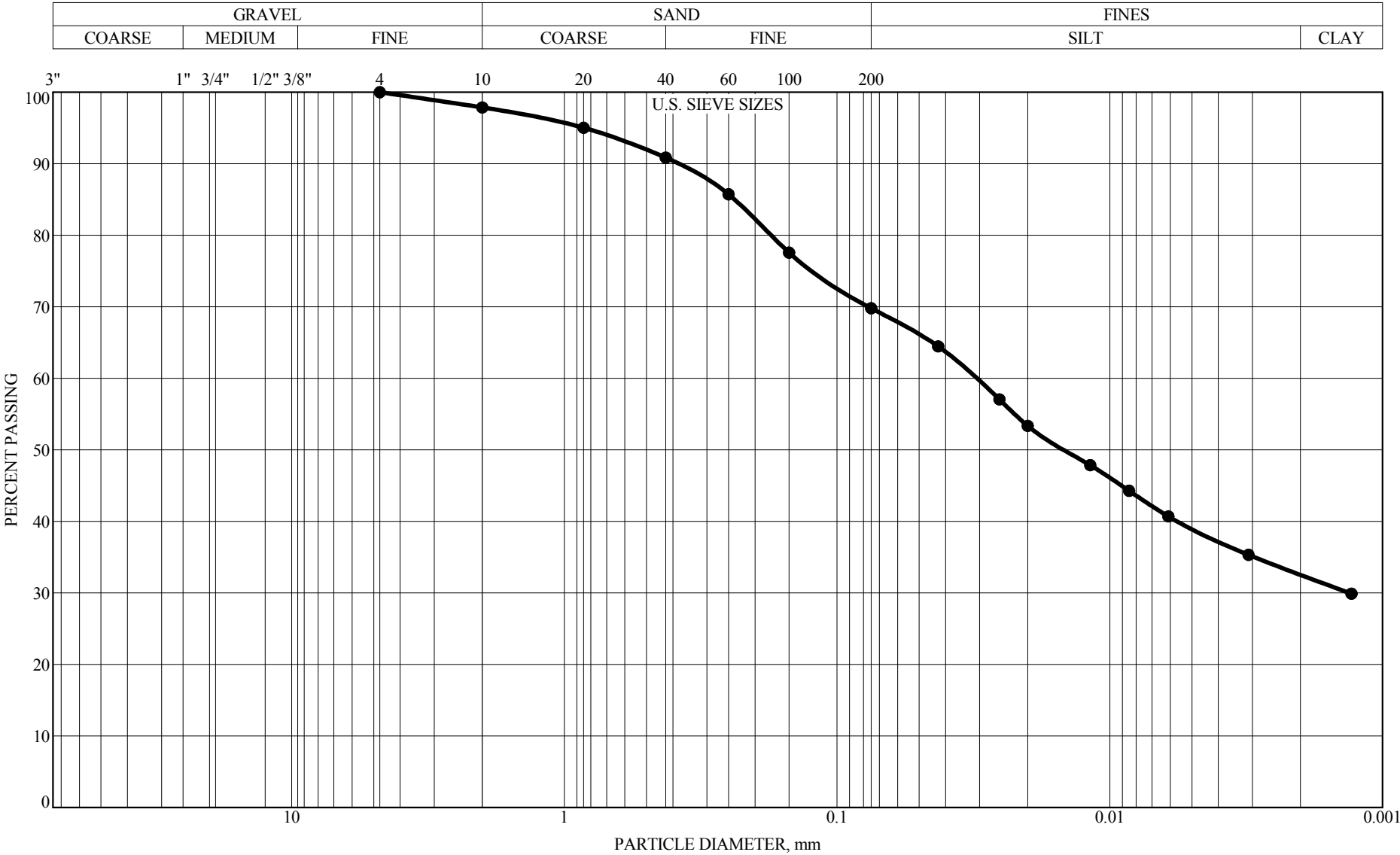
GRAVEL	3.3%
SAND	28.1%
SILT	40.6%
CLAY	28.0%

CLASSIFICATION:

A-7-6 (15), brown trace black
SANDY LEAN CLAY(CL)

LL=41, PL=16, PI=25, P200=68.6%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



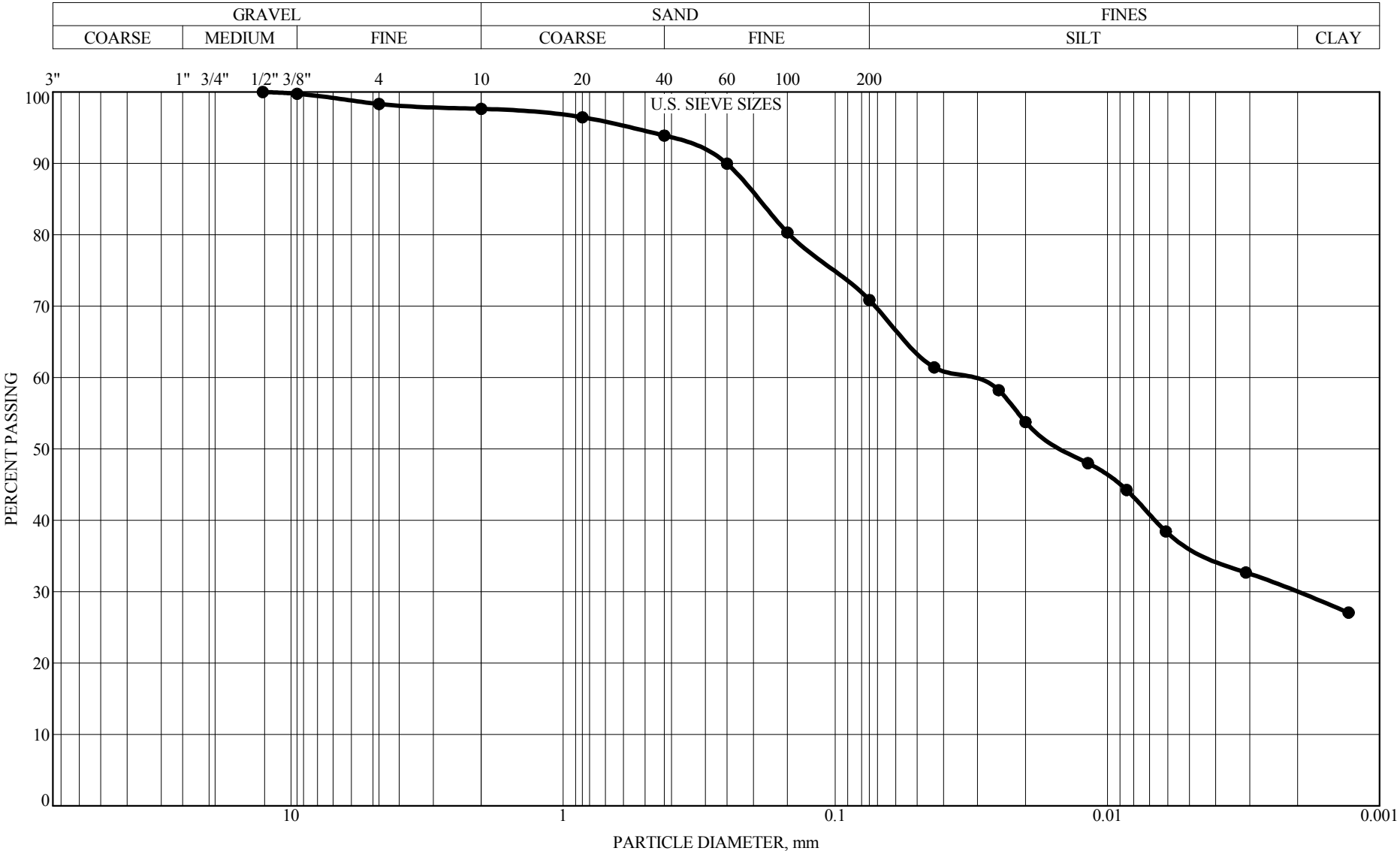
Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-96 DEPTH: 0.9'-10.0'

GRAVEL 2.1%
SAND 28.1%
SILT 37.2%
CLAY 32.6%

CLASSIFICATION:
A-7-6 (16), brown
SANDY LEAN CLAY(CL)

LL=41, PL=15, PI=26, P200=69.8%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)

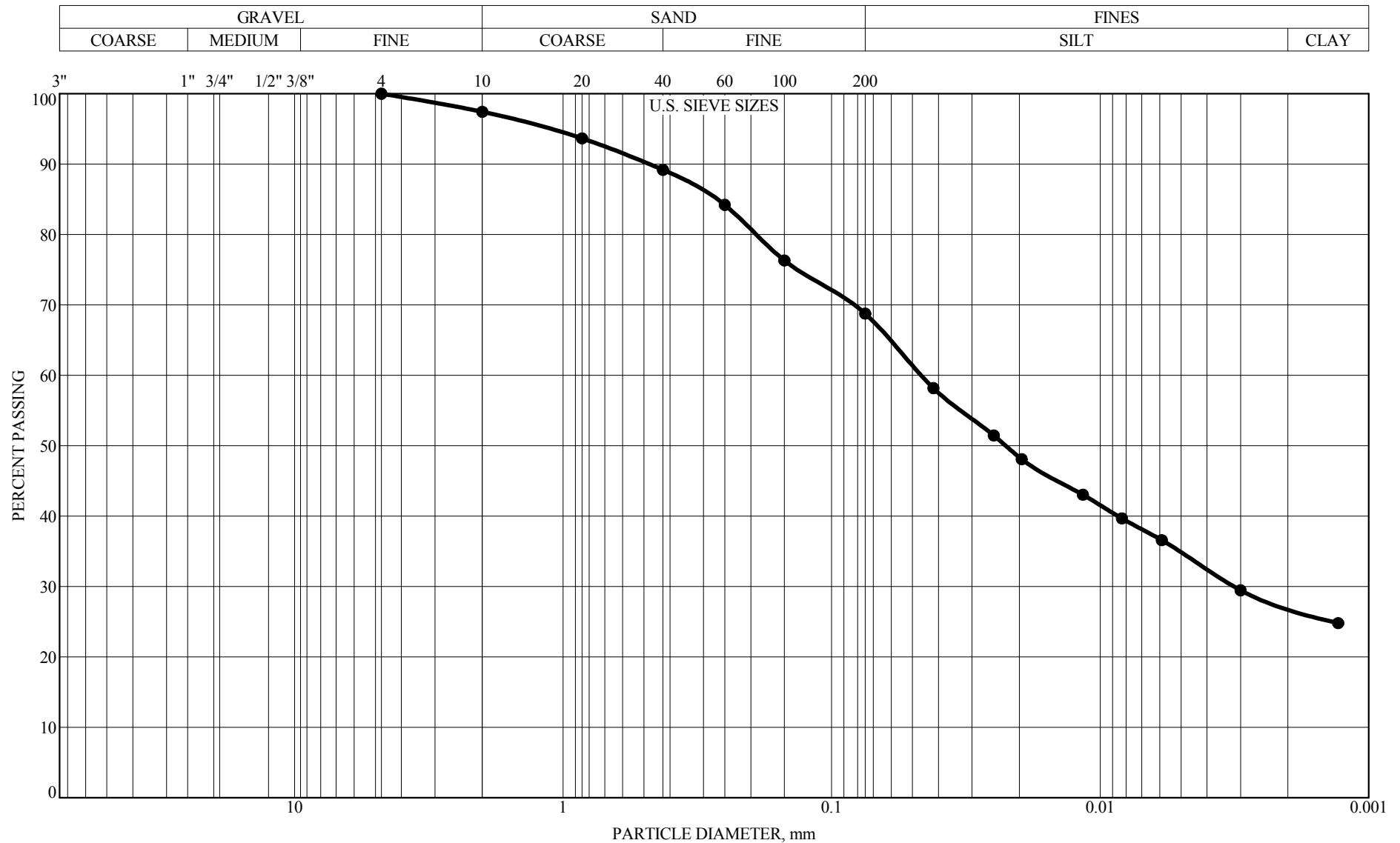


Braun Project BM-13-05525
Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota
BORING: LSS-97 DEPTH: 1.0'-10.0'

GRAVEL 2.4%
SAND 26.8%
SILT 41.0%
CLAY 29.9%

CLASSIFICATION:
A-7-6 (17), brown
LEAN CLAY with SAND(CL)
LL=42, PL=15, PI=27, P200=70.9%

GRAIN SIZE ACCUMULATION CURVE (AASHTO)



BRAUNSM
INTERTEC

Braun Project BM-13-05525

**Geotechnical Evaluation
Highway 1804 Reconstruction
Highway 1804
New Town, North Dakota**

BORING: LSS-98 DEPTH: 1.1'-10.0'

GRAVEL	2.6%
SAND	28.7%
SILT	41.6%
CLAY	27.2%

CLASSIFICATION:

A-7-6 (15), brown
SANDY LEAN CLAY(CL)

LL=42, PL=17, PI=25, P200=68.8%

Appendix F:
Proctor Test Results

Proctor Report

Report No: PTR:W14-000057-S1

Issue No: 1

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

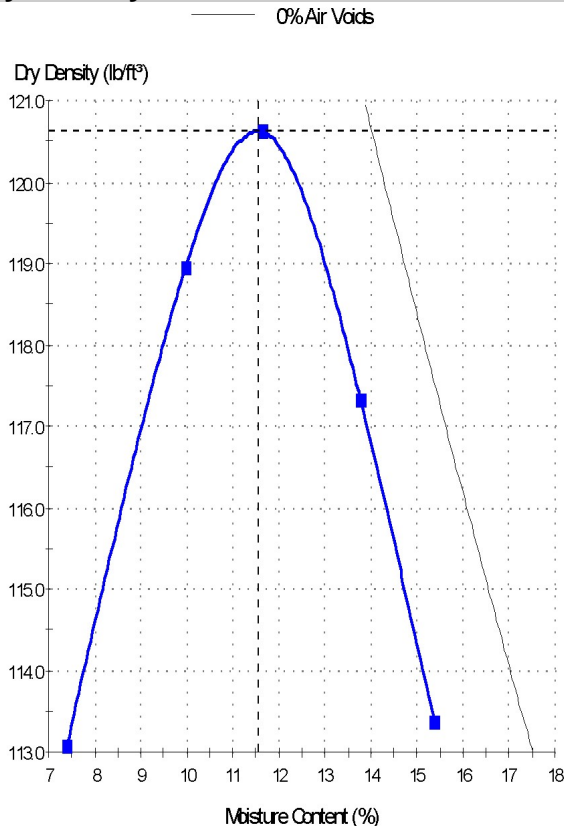


Ryan Anderson
Engineer in Training
Date of Issue: 3/6/2014

Sample Details

Sample ID:	W14-000057-S1	Alternate Sample ID:	LSS-01, 1'-10'
Date Sampled:	12/11/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (9)		
Specification:	For Informational Purposes Only		
Location:	LSS-01, 1'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	121
Corrected Maximum Dry Density (lb/ft³):	121
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 35; PI = 19
Percent Retained on #4 Sieve = 4.9%; Percent Passing #200 Sieve = 61.0%

Proctor Report

Report No: PTR:W14-000057-S2

Issue No: 1

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

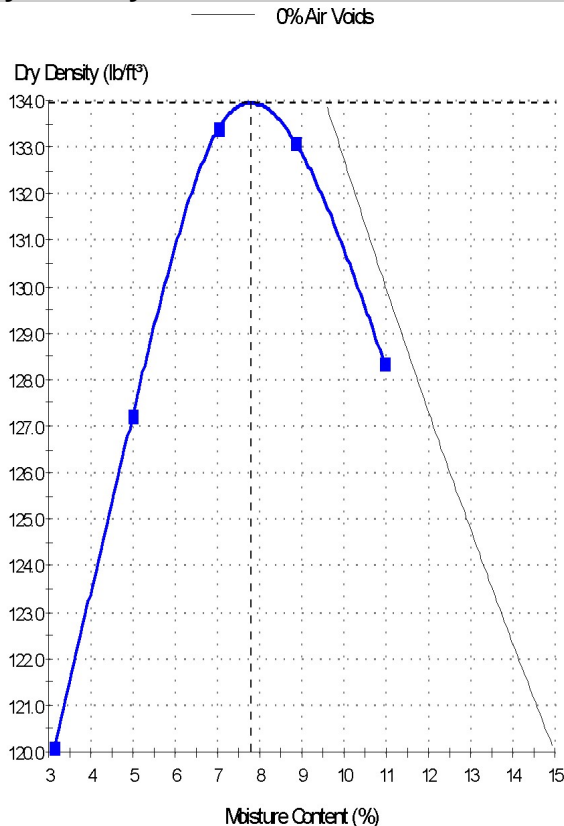


Ryan Anderson
Engineer in Training
Date of Issue: 3/11/2014

Sample Details

Sample ID:	W14-000057-S2	Alternate Sample ID:	LSS-02, 1'-10'
Date Sampled:	12/11/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SILTY SAND (SM); A-1-b (0)		
Specification:	For Informational Purposes Only		
Location:	LSS-02, 1'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	134
Corrected Maximum Dry Density (lb/ft³):	134
Optimum Moisture Content (%):	8
Corrected Optimum Moisture Content (%):	8
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = NP; PI = NP
Percent Retained on #4 Sieve = 7.1%; Percent Passing #200 Sieve = 13.4%

Proctor Report

Report No: PTR:W14-000057-S3

Issue No: 1

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com



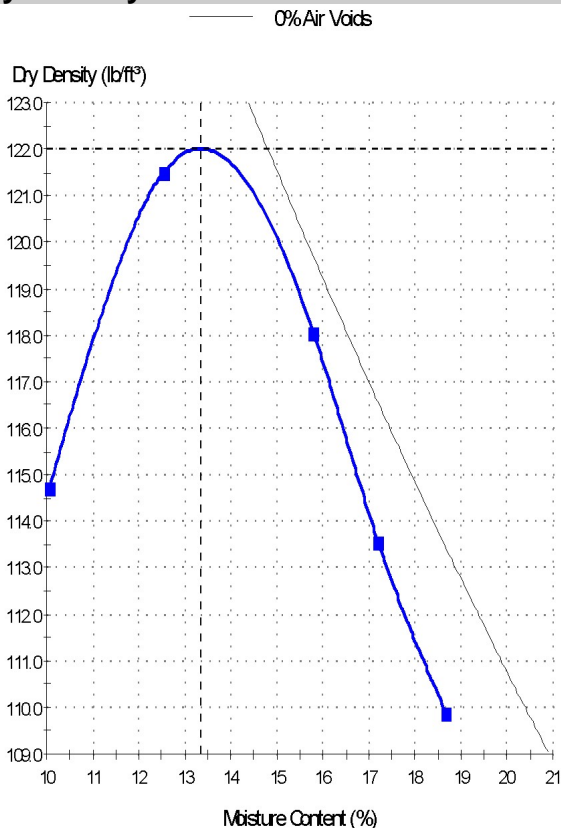
Ryan Anderson
Engineer in Training
Date of Issue: 6/9/2014

Sample Details

Sample ID: W14-000057-S3
Date Sampled: 12/11/2013
Sampled By: Jeff Logan
Source: Highway 1804 Subgrade
Material: FAT CLAY (CH); A-7-6 (35)
Specification: For Informational Purposes Only
Location: LSS-03, 0.9'-7'
Date Tested: 2/4/2014

Alternate Sample ID: LSS-03, 0.9'-7'
Date Submitted: 12/18/2013
Sampling Method: Soil Boring Auger

Dry Density - Moisture Content Relationship



Test Results

— AASHTO T 180 - 01 —

Maximum Dry Density (lb/ft³):	122
Corrected Maximum Dry Density (lb/ft³):	122
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.75
LL = 51; PI = 34
Percent Retained on #4 Sieve = 3.1%; Percent Passing #200 Sieve = 93.0%

Proctor Report

Report No: PTR:W14-000057-S4

Issue No: 1

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

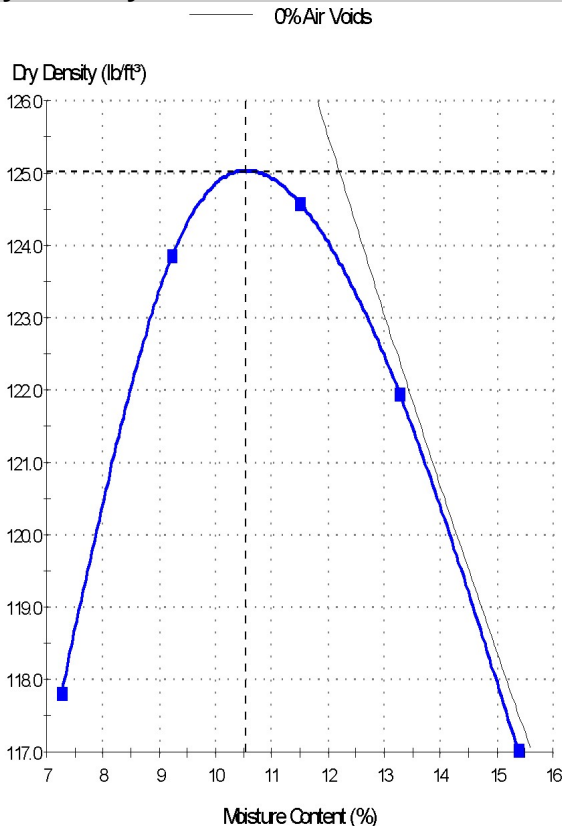


Ryan Anderson
Engineer in Training
Date of Issue: 3/11/2014

Sample Details

Sample ID:	W14-000057-S4	Alternate Sample ID:	LSS-03A, 1.3'-10'
Date Sampled:	12/11/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-7-6 (19)		
Specification:	For Informational Purposes Only		
Location:	LSS-03A, 1.3'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	125
Corrected Maximum Dry Density (lb/ft³):	125
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 46; PI = 30
Percent Retained on #4 Sieve = 2.3%; Percent Passing #200 Sieve = 70.8%

Proctor Report

Report No: PTR:W14-000057-S5**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

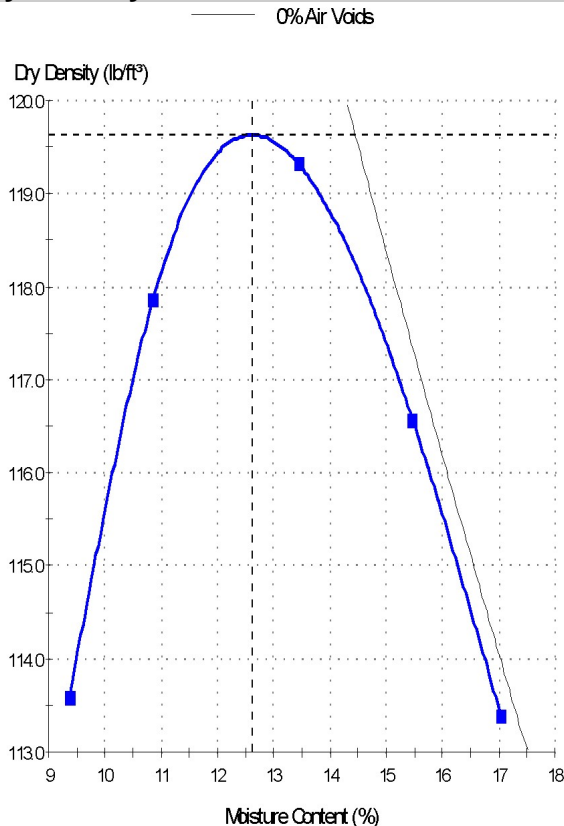


Ryan Anderson
Engineer in Training
Date of Issue: 3/11/2014

Sample Details

Sample ID:	W14-000057-S5	Alternate Sample ID:	LSS-04, 1.2'-10'
Date Sampled:	12/11/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-7-6 (24)		
Specification:	For Informational Purposes Only		
Location:	LSS-04, 1.2'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	120
Corrected Maximum Dry Density (lb/ft³):	120
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 47; PI = 30
Percent Retained on #4 Sieve = 1.2%; Percent Passing #200 Sieve = 81.4%

Proctor Report

Report No: PTR:W14-000057-S6**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

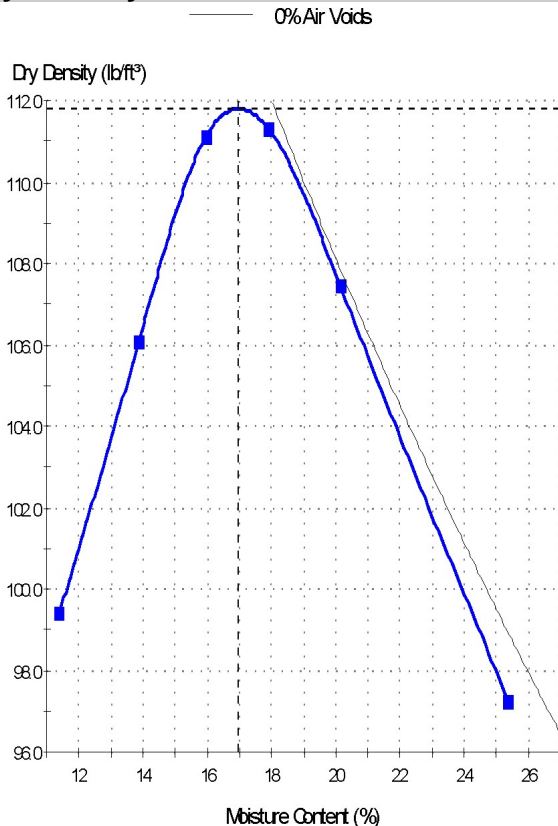


Ryan Anderson
Engineer in Training
Date of Issue: 6/9/2014

Sample Details

Sample ID:	W14-000057-S6	Alternate Sample ID:	LSS-04A, 1.2'-10'
Date Sampled:	12/11/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	FAT CLAY (CH); A-7-6 (72)		
Specification:	For Informational Purposes Only		
Location:	LSS-04A, 1.2'-10'		
Date Tested:	2/5/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	112
Corrected Maximum Dry Density (lb/ft³):	112
Optimum Moisture Content (%):	17
Corrected Optimum Moisture Content (%):	17
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 88; PI = 67
Percent Retained on #4 Sieve = 0.9%; Percent Passing #200 Sieve = 95.4%

Proctor Report

Report No: PTR:W14-000057-S7**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

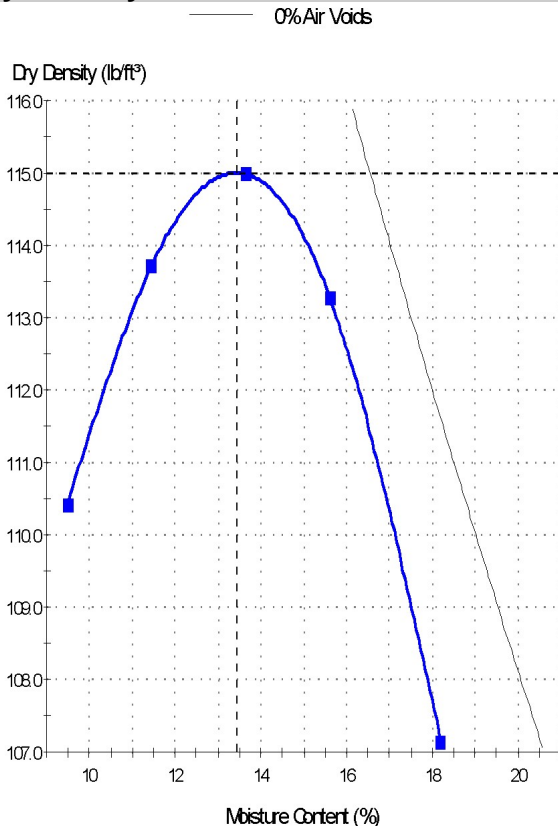


Ryan Anderson
Engineer in Training
Date of Issue: 3/11/2014

Sample Details

Sample ID:	W14-000057-S7	Alternate Sample ID:	LSS-05, 1.1'-10'
Date Sampled:	12/11/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	FAT CLAY with SAND (CH); A-7-6 (29)		
Specification:	For Informational Purposes Only		
Location:	LSS-05, 1.1'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	115
Corrected Maximum Dry Density (lb/ft³):	115
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 53; PI = 35
Percent Retained on #4 Sieve = 1.7%; Percent Passing #200 Sieve = 80.8%

Proctor Report

Report No: PTR:W14-000057-S8**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

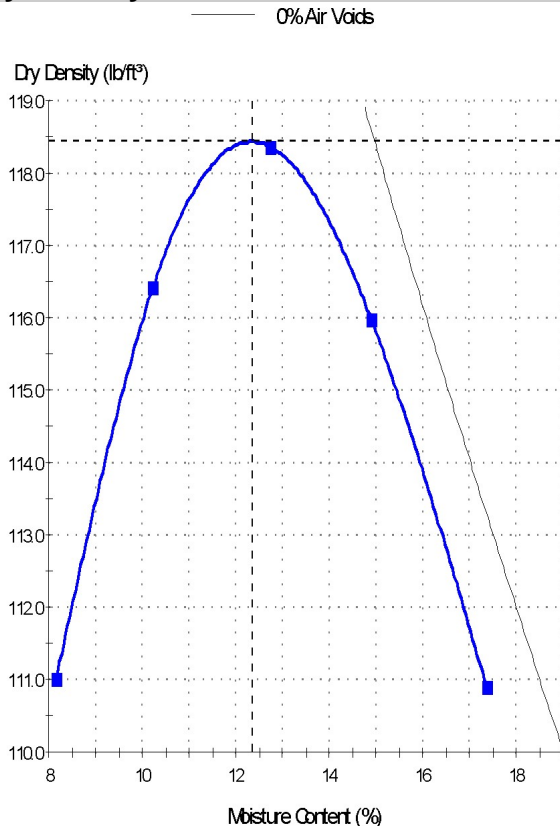


Ryan Anderson
Engineer in Training
Date of Issue: 3/11/2014

Sample Details

Sample ID:	W14-000057-S8	Alternate Sample ID:	LSS-05A, 1.1'-10'
Date Sampled:	12/11/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-7-6 (21)		
Specification:	For Informational Purposes Only		
Location:	LSS-05A, 1.1'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	118
Corrected Maximum Dry Density (lb/ft³):	118
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 46; PI = 29
Percent Retained on #4 Sieve = 2.6%; Percent Passing #200 Sieve = 76.0%

Proctor Report

Report No: PTR:W14-000057-S9**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

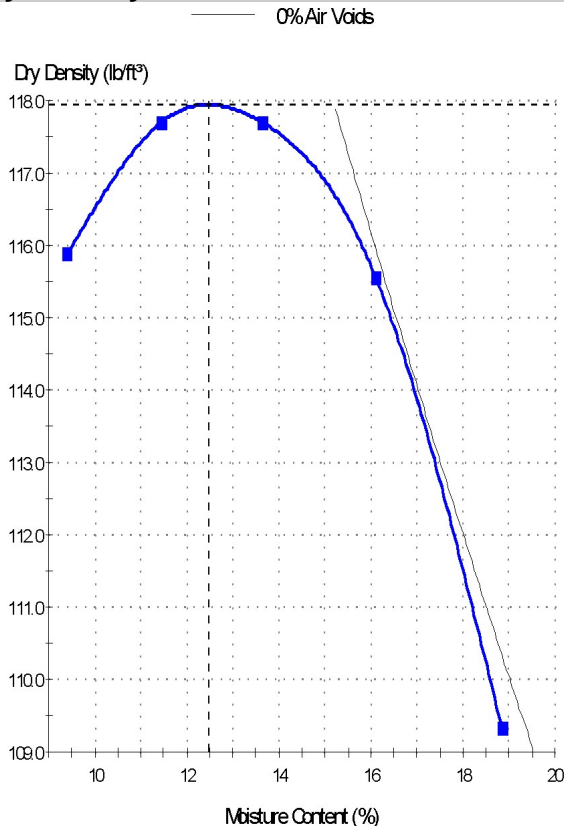


Ryan Anderson
Engineer in Training
Date of Issue: 3/11/2014

Sample Details

Sample ID:	W14-000057-S9	Alternate Sample ID:	LSS-06, 1.1'-10'
Date Sampled:	12/12/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-7-6 (23)		
Specification:	For Informational Purposes Only		
Location:	LSS-06, 1.1'-10'		
Date Tested:	2/21/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	118
Corrected Maximum Dry Density (lb/ft³):	118
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 47; PI = 29
Percent Retained on #4 Sieve = 3.8%; Percent Passing #200 Sieve = 78.9%

Proctor Report

Report No: PTR:W14-000057-S10**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

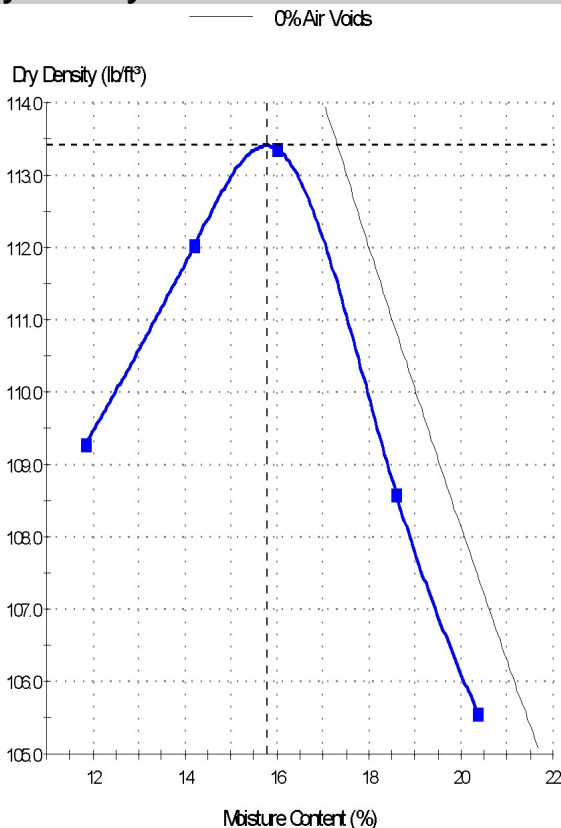


Ryan Anderson
Engineer in Training
Date of Issue: 3/11/2014

Sample Details

Sample ID:	W14-000057-S10	Alternate Sample ID:	LSS-06A, 1.1'-10'
Date Sampled:	12/12/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	FAT CLAY (CH); A-7-6 (28)		
Specification:	For Informational Purposes Only		
Location:	LSS-06A, 1.1'-10'		
Date Tested:	2/21/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	113
Corrected Maximum Dry Density (lb/ft³):	113
Optimum Moisture Content (%):	16
Corrected Optimum Moisture Content (%):	16
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 51; PI = 31
Percent Retained on #4 Sieve = 0.5%; Percent Passing #200 Sieve = 85.8%

Proctor Report

Report No: PTR:W14-000057-S11**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

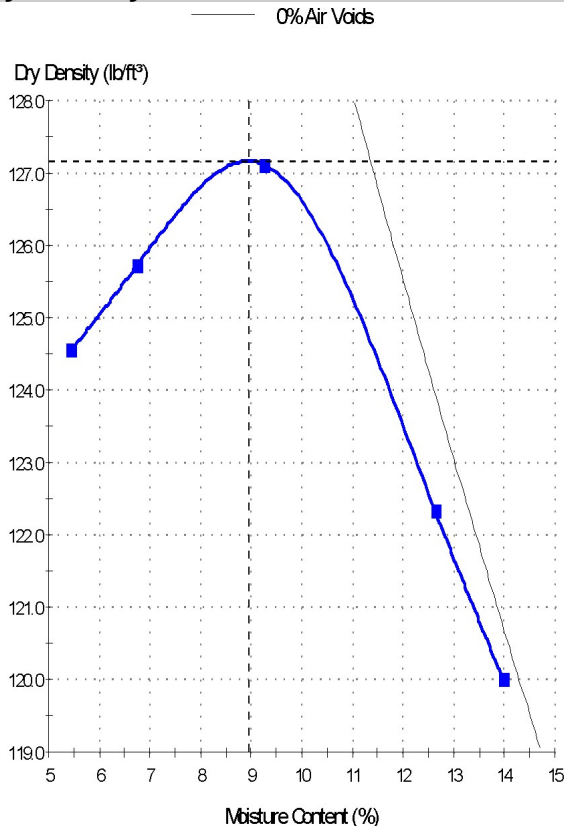


Ryan Anderson
Engineer in Training
Date of Issue: 6/9/2014

Sample Details

Sample ID:	W14-000057-S11	Alternate Sample ID:	LSS-07, 1.2'-10'
Date Sampled:	12/12/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (15)		
Specification:	For Informational Purposes Only		
Location:	LSS-07, 1.2'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	127
Corrected Maximum Dry Density (lb/ft³):	127
Optimum Moisture Content (%):	9
Corrected Optimum Moisture Content (%):	9
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 42; PI = 25
Percent Retained on #4 Sieve = 3.4%; Percent Passing #200 Sieve = 67.7%

Proctor Report

Report No: PTR:W14-000057-S12**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

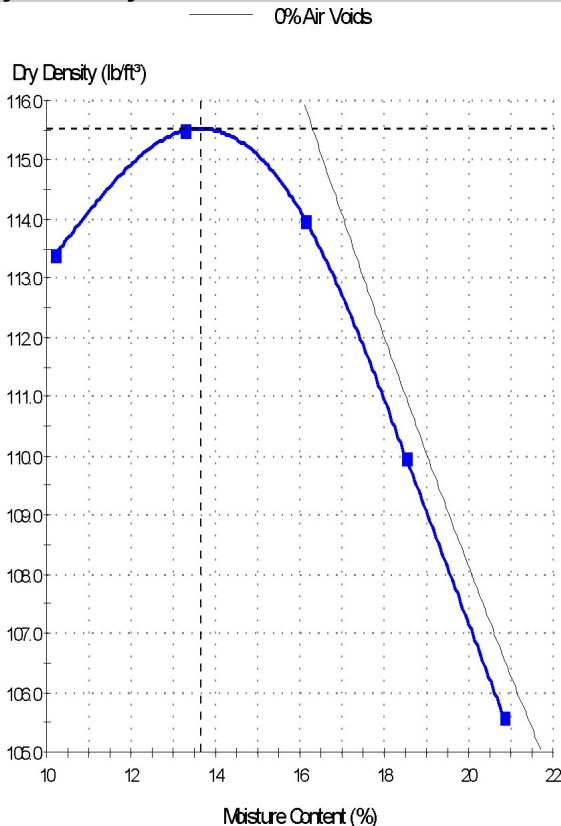


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S12	Alternate Sample ID:	LSS-07A, 1.3'-10'
Date Sampled:	12/12/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	FAT CLAY with SAND (CH); A-7-6 (24)		
Specification:	For Informational Purposes Only		
Location:	LSS-07A, 1.3'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	116
Corrected Maximum Dry Density (lb/ft³):	116
Optimum Moisture Content (%):	14
Corrected Optimum Moisture Content (%):	14
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 51; PI = 33
Percent Retained on #4 Sieve = 2.7%; Percent Passing #200 Sieve = 73.5%

Proctor Report

Report No: PTR:W14-000173-S44**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

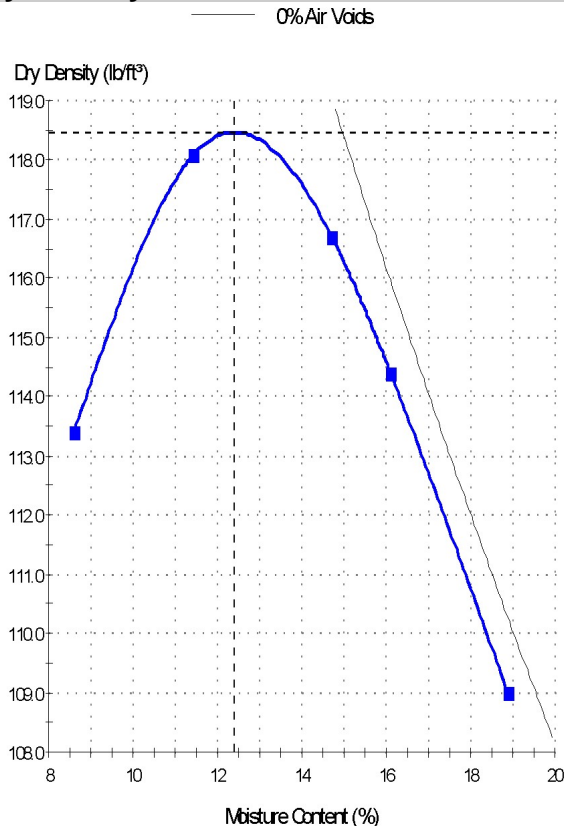


Ryan Anderson
Engineer in Training
Date of Issue: 3/11/2014

Sample Details

Sample ID:	W14-000173-S44	Alternate Sample ID:	LSS-08, 1.2'-10'
Date Sampled:	12/12/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	FAT CLAY (CH); A-7-6 (47)		
Specification:	For Informational Purposes Only		
Location:	LSS-08, 1.2'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	118
Corrected Maximum Dry Density (lb/ft³):	118
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 62; PI = 44
Percent Retained on #4 Sieve = 0.0%; Percent Passing #200 Sieve = 97.3%

Proctor Report

Report No: PTR:W14-000173-S45**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

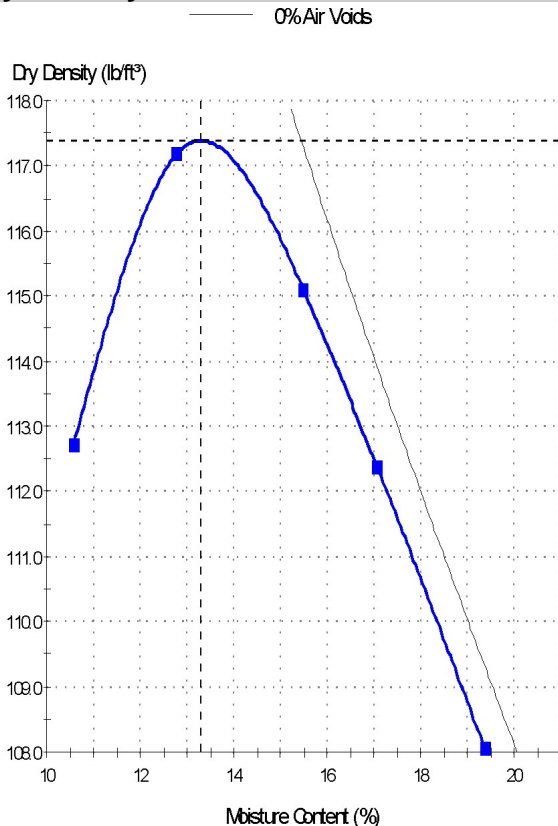


Ryan Anderson
Engineer in Training
Date of Issue: 3/11/2014

Sample Details

Sample ID:	W14-000173-S45	Alternate Sample ID:	LSS-08A, 1.2'-10'
Date Sampled:	12/12/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-7-6 (22)		
Specification:	For Informational Purposes Only		
Location:	LSS-08A, 1.2'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

— AASHTO T 180 - 01 —

Maximum Dry Density (lb/ft³):	117
Corrected Maximum Dry Density (lb/ft³):	117
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 49; PI = 32
Percent Retained on #4 Sieve = 4.5%; Percent Passing #200 Sieve = 72.2%

Proctor Report

Report No: PTR:W14-000173-S46**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

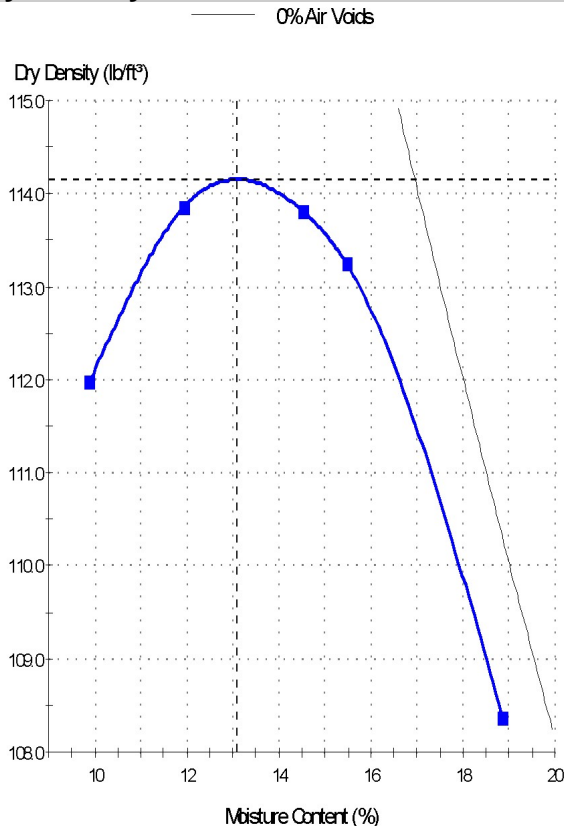


Ryan Anderson
Engineer in Training
Date of Issue: 3/11/2014

Sample Details

Sample ID:	W14-000173-S46	Alternate Sample ID:	LSS-09, 1.1'-9'
Date Sampled:	12/12/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-6 (15)		
Specification:	For Informational Purposes Only		
Location:	LSS-09, 1.1'-9'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	114
Corrected Maximum Dry Density (lb/ft³):	114
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 38; PI = 22
Percent Retained on #4 Sieve = 0.0%; Percent Passing #200 Sieve = 75.5%

Proctor Report

Report No: PTR:W14-000173-S47**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

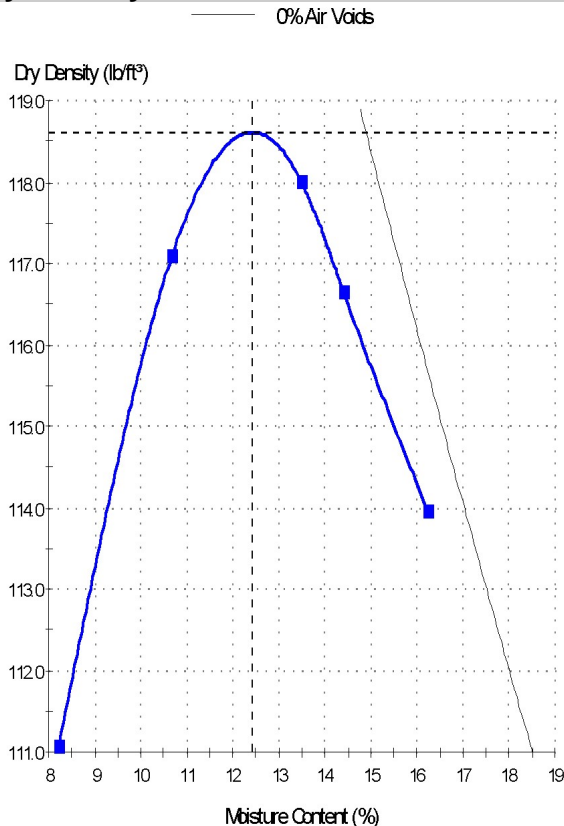


Ryan Anderson
Engineer in Training
Date of Issue: 3/11/2014

Sample Details

Sample ID:	W14-000173-S47	Alternate Sample ID:	LSS-09A, 1.3'-10'
Date Sampled:	12/12/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-6 (14)		
Specification:	For Informational Purposes Only		
Location:	LSS-09A, 1.3'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

— AASHTO T 180 - 01 —

Maximum Dry Density (lb/ft³):	119
Corrected Maximum Dry Density (lb/ft³):	119
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 38; PI = 21
Percent Retained on #4 Sieve = 1.8%; Percent Passing #200 Sieve = 73.8%

Proctor Report

Report No: PTR:W14-000173-S48**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

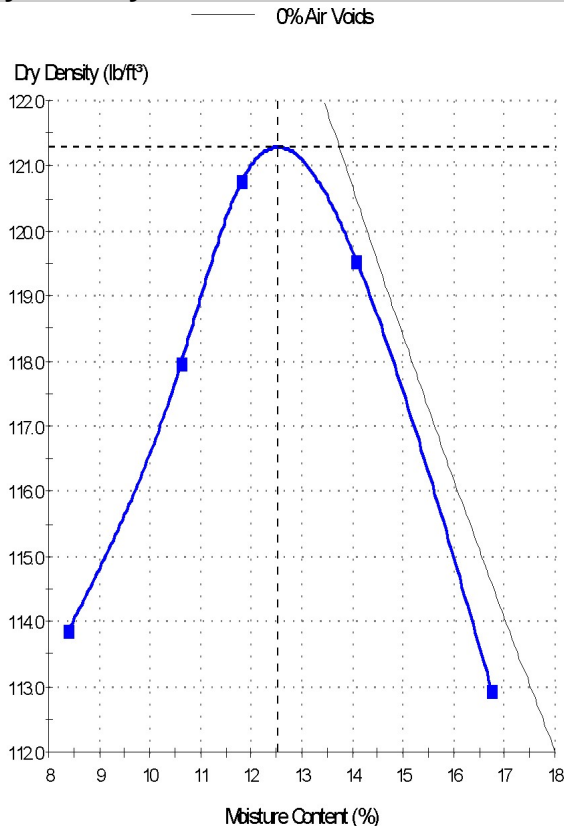


Ryan Anderson
Engineer in Training
Date of Issue: 3/11/2014

Sample Details

Sample ID:	W14-000173-S48	Alternate Sample ID:	LSS-10, 1.2'-10'
Date Sampled:	12/12/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-6 (18)		
Specification:	For Informational Purposes Only		
Location:	LSS-10, 1.2'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	121
Corrected Maximum Dry Density (lb/ft³):	121
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 40; PI = 23
Percent Retained on #4 Sieve = 2.4%; Percent Passing #200 Sieve = 80.5%

Proctor Report

Report No: PTR:W14-000173-S49**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

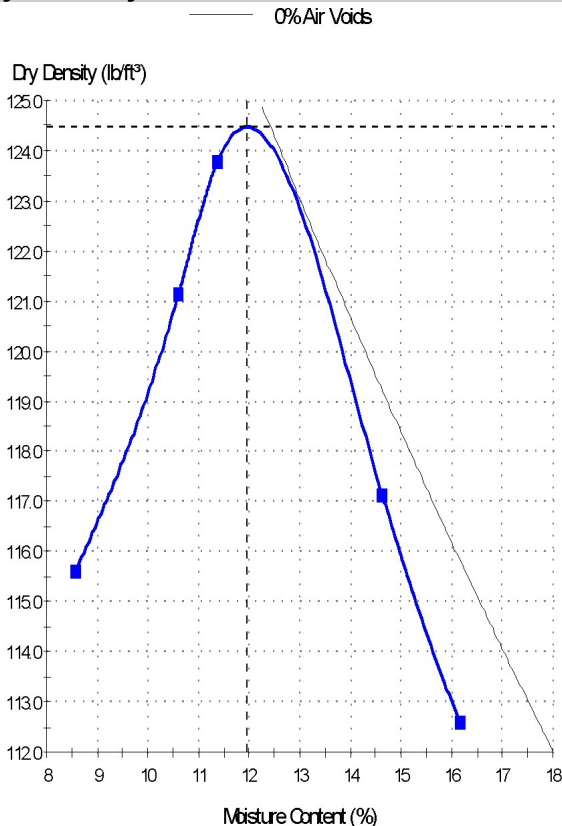


Ryan Anderson
Engineer in Training
Date of Issue: 6/9/2014

Sample Details

Sample ID:	W14-000173-S49	Alternate Sample ID:	LSS-10A, 1.1'-8'
Date Sampled:	12/12/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (7)		
Specification:	For Informational Purposes Only		
Location:	LSS-10A, 1.1'-8'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

— AASHTO T 180 - 01 —

Maximum Dry Density (lb/ft³):	124
Corrected Maximum Dry Density (lb/ft³):	124
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 30; PI = 14
Percent Retained on #4 Sieve = 1.6%; Percent Passing #200 Sieve = 69.3%

Proctor Report

Report No: PTR:W14-000173-S50**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

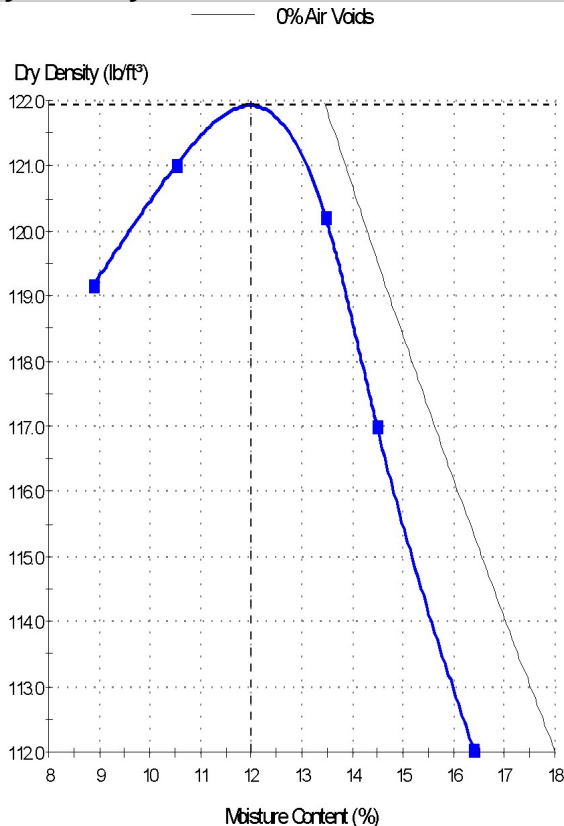


Ryan Anderson
Engineer in Training
Date of Issue: 3/11/2014

Sample Details

Sample ID:	W14-000173-S50	Alternate Sample ID:	LSS-11, 1'-10'
Date Sampled:	12/12/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY (CL); A-6 (11)		
Specification:	For Informational Purposes Only		
Location:	LSS-11, 1'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	122
Corrected Maximum Dry Density (lb/ft³):	122
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 33; PI = 12
Percent Retained on #4 Sieve = 0.0%; Percent Passing #200 Sieve = 93.2%

Proctor Report

Report No: PTR:W14-000173-S51**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

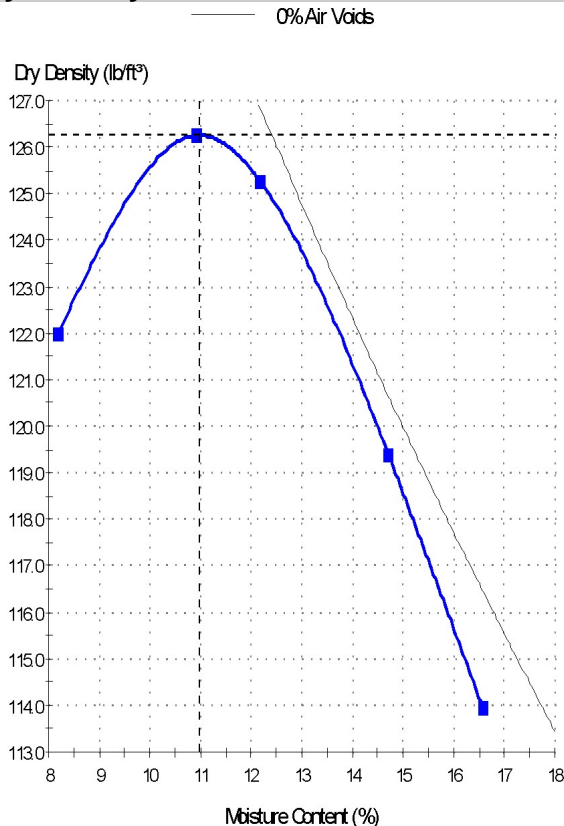


Ryan Anderson
Engineer in Training
Date of Issue: 3/11/2014

Sample Details

Sample ID:	W14-000173-S51	Alternate Sample ID:	LSS-11A, 1'-10'
Date Sampled:	12/12/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (9)		
Specification:	For Informational Purposes Only		
Location:	LSS-11A, 1'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	126
Corrected Maximum Dry Density (lb/ft³):	126
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 35; PI = 19
Percent Retained on #4 Sieve = 1.6%; Percent Passing #200 Sieve = 63.4%

Proctor Report

Report No: PTR:W14-000173-S52**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

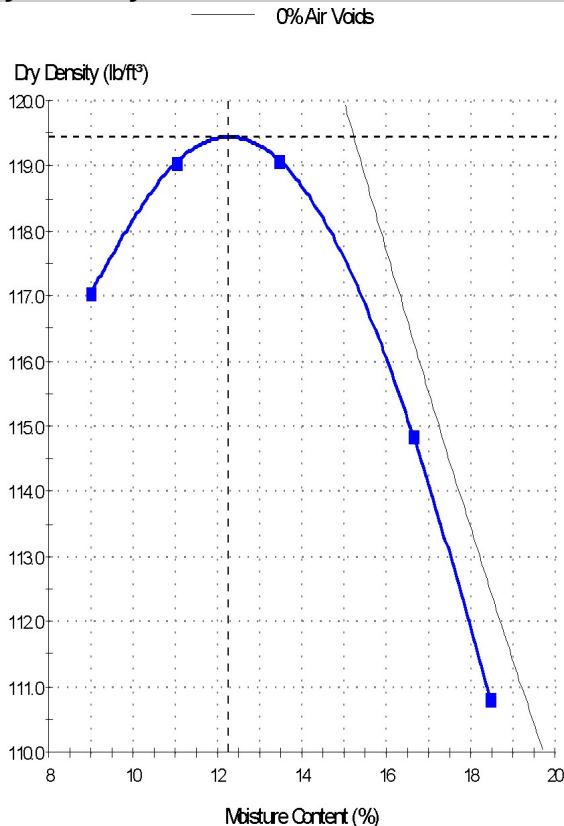


Ryan Anderson
Engineer in Training
Date of Issue: 3/11/2014

Sample Details

Sample ID:	W14-000173-S52	Alternate Sample ID:	LSS-12, 1'-10'
Date Sampled:	12/12/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY (CL); A-7-6 (25)		
Specification:	For Informational Purposes Only		
Location:	LSS-12, 1'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	119
Corrected Maximum Dry Density (lb/ft³):	119
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 46; PI = 28
Percent Retained on #4 Sieve = 0.4%; Percent Passing #200 Sieve = 86.3%

Proctor Report

Report No: PTR:W14-000173-S53**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

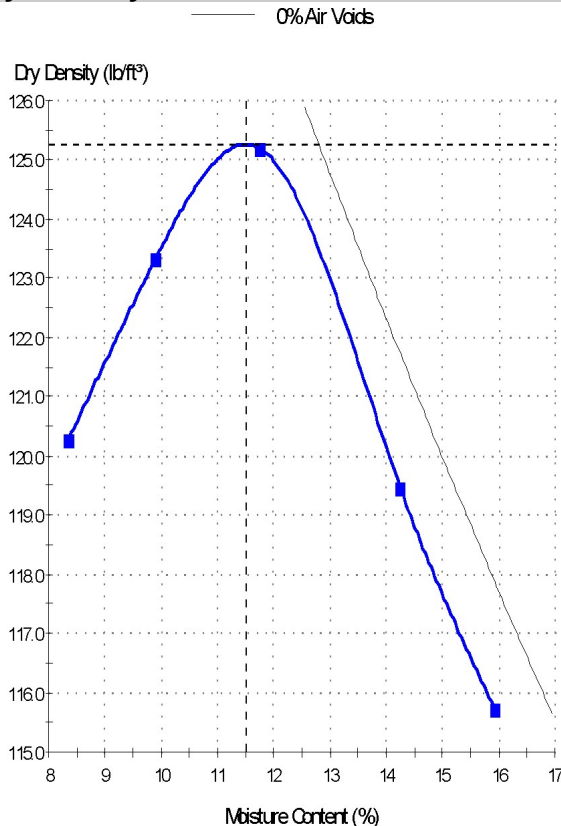


Ryan Anderson
Engineer in Training
Date of Issue: 3/11/2014

Sample Details

Sample ID:	W14-000173-S53	Alternate Sample ID:	LSS-12A, 1'-10'
Date Sampled:	12/12/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (10)		
Specification:	For Informational Purposes Only		
Location:	LSS-12A, 1'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	125
Corrected Maximum Dry Density (lb/ft³):	125
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 34; PI = 19
Percent Retained on #4 Sieve = 2.4%; Percent Passing #200 Sieve = 67.0%

Proctor Report

Report No: PTR:W14-000057-S13**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

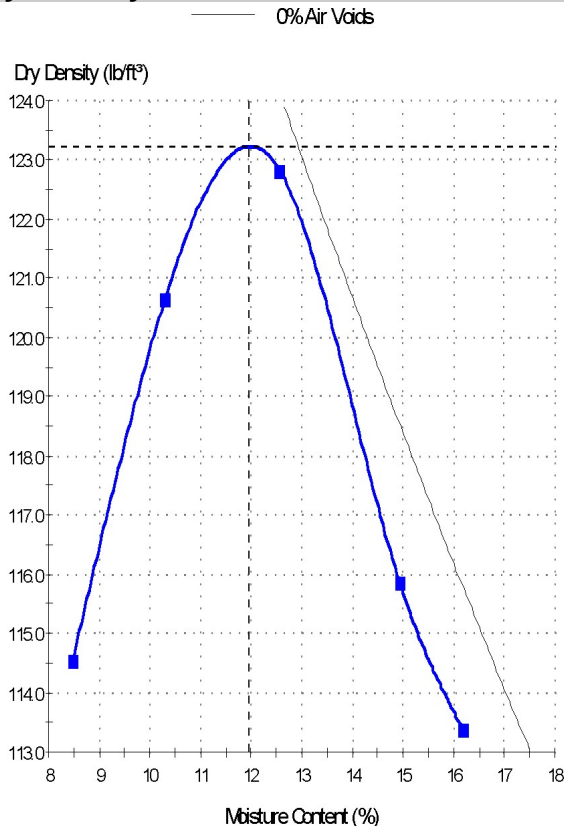


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S13	Alternate Sample ID:	LSS-13, 1.1'-10'
Date Sampled:	12/13/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (9)		
Specification:	For Informational Purposes Only		
Location:	LSS-13, 1.1'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	123
Corrected Maximum Dry Density (lb/ft³):	123
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 34; PI = 19
Percent Retained on #4 Sieve = 3.2%; Percent Passing #200 Sieve = 60.9%

Proctor Report

Report No: PTR:W14-000057-S14**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

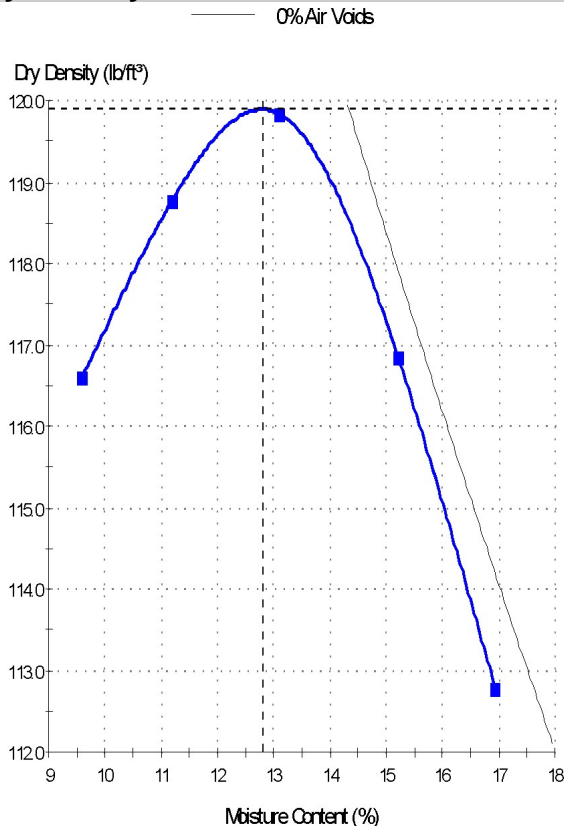


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S14	Alternate Sample ID:	LSS-13A, 0.9'-10'
Date Sampled:	12/13/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-7-6 (18)		
Specification:	For Informational Purposes Only		
Location:	LSS-13A, 0.9'-10'		
Date Tested:	2/10/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	120
Corrected Maximum Dry Density (lb/ft³):	120
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 44; PI = 26
Percent Retained on #4 Sieve = 4.4%; Percent Passing #200 Sieve = 74.7%

Proctor Report

Report No: PTR:W14-000057-S15**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

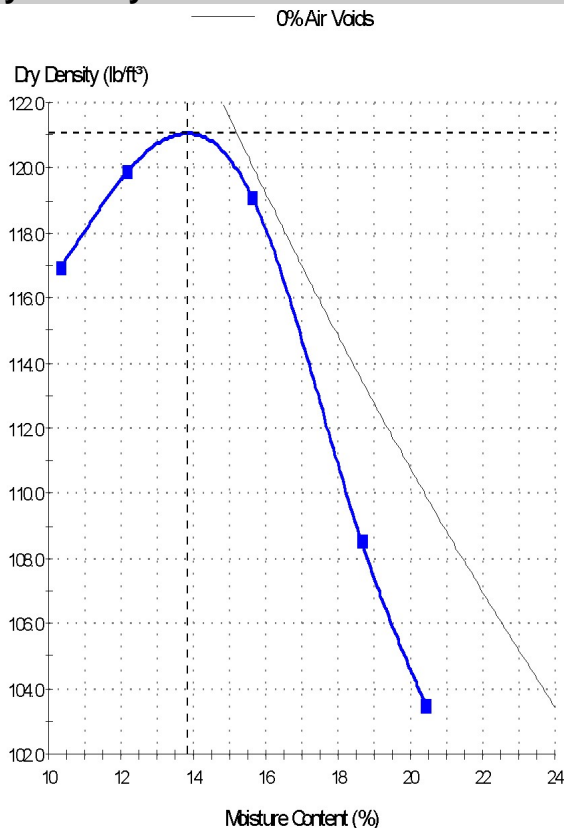


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S15	Alternate Sample ID:	LSS-14, 0.9'-10'
Date Sampled:	12/13/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (15)		
Specification:	For Informational Purposes Only		
Location:	LSS-14, 0.9'-10'		
Date Tested:	2/20/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	121
Corrected Maximum Dry Density (lb/ft³):	121
Optimum Moisture Content (%):	14
Corrected Optimum Moisture Content (%):	14
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.75
LL = 42; PI = 26
Percent Retained on #4 Sieve = 4.8%; Percent Passing #200 Sieve = 67.6%

Proctor Report

Report No: PTR:W14-000057-S16**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

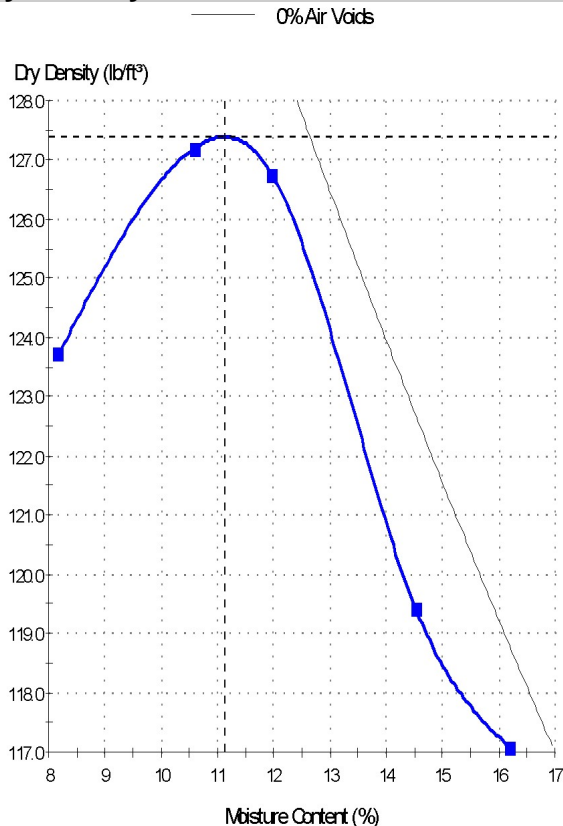


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S16	Alternate Sample ID:	LSS-14A, 0.9'-10'
Date Sampled:	12/13/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (10)		
Specification:	For Informational Purposes Only		
Location:	LSS-14A, 0.9'-10'		
Date Tested:	2/10/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	127
Corrected Maximum Dry Density (lb/ft³):	127
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.75
LL = 37; PI = 22
Percent Retained on #4 Sieve = 6.0%; Percent Passing #200 Sieve = 60.4%

Proctor Report

Report No: PTR:W14-000057-S17**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

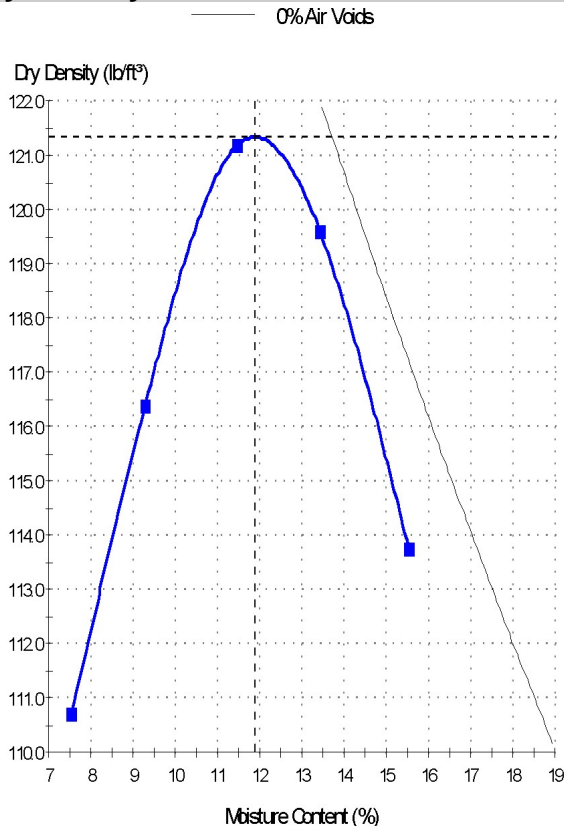


Ryan Anderson
Engineer in Training
Date of Issue: 3/18/2014

Sample Details

Sample ID:	W14-000057-S17	Alternate Sample ID:	LSS-15, 0.9'-10'
Date Sampled:	12/13/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (13)		
Specification:	For Informational Purposes Only		
Location:	LSS-15, 0.9'-10'		
Date Tested:	1/8/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	121
Corrected Maximum Dry Density (lb/ft³):	121
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 40; PI = 25
Percent Retained on #4 Sieve = 4.3%; Percent Passing #200 Sieve = 63.0%

Proctor Report

Report No: PTR:W14-000057-S18**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

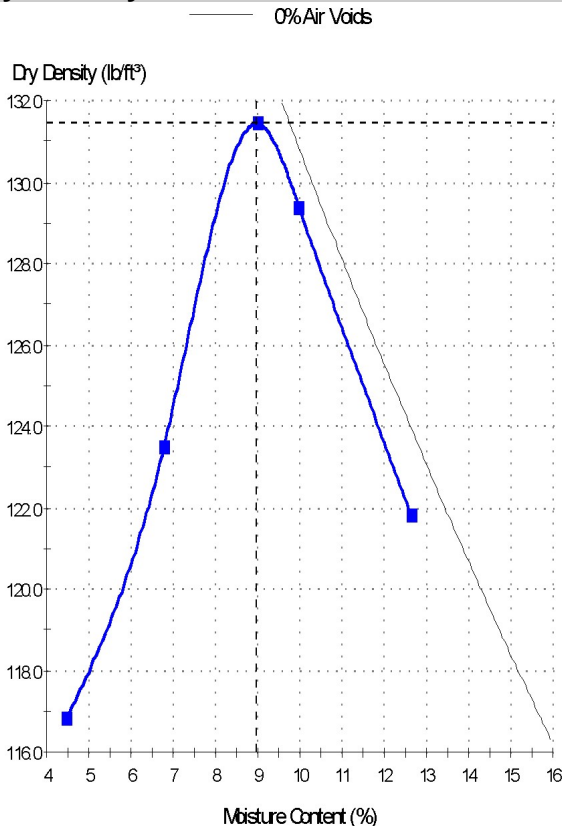


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S18	Alternate Sample ID:	LSS-15A, 1'-10'
Date Sampled:	12/13/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	CLAYEY SAND (SC); A-6 (3)		
Specification:	For Informational Purposes Only		
Location:	LSS-15A, 1'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	131
Corrected Maximum Dry Density (lb/ft³):	131
Optimum Moisture Content (%):	9
Corrected Optimum Moisture Content (%):	9
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 30; PI = 14
Percent Retained on #4 Sieve = 10.3%; Percent Passing #200 Sieve = 45.6%

Proctor Report

Report No: PTR:W14-000057-S19**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

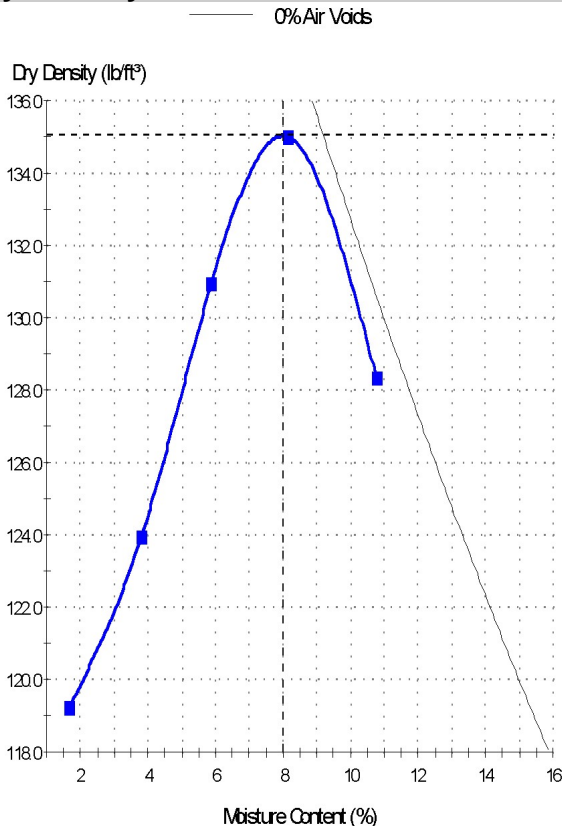


Ryan Anderson
Engineer in Training
Date of Issue: 6/9/2014

Sample Details

Sample ID:	W14-000057-S19	Alternate Sample ID:	LSS-16, 0.9'-8'
Date Sampled:	12/13/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	CLAYEY SAND (SC); A-6 (2)		
Specification:	For Informational Purposes Only		
Location:	LSS-16, 0.9'-8'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	135
Corrected Maximum Dry Density (lb/ft³):	135
Optimum Moisture Content (%):	8
Corrected Optimum Moisture Content (%):	8
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 30; PI = 16
Percent Retained on #4 Sieve = 11.0%; Percent Passing #200 Sieve = 39.2%

Proctor Report

Report No: PTR:W14-000057-S66**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

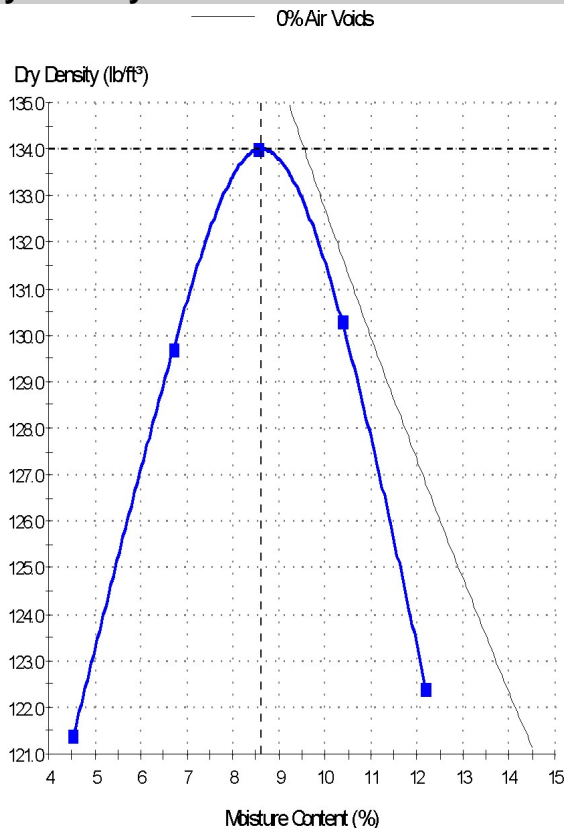


Ryan Anderson
Engineer in Training
Date of Issue: 3/24/2014

Sample Details

Sample ID:	W14-000057-S66	Alternate Sample ID:	LSS-16A, 1'-10'
Date Sampled:	12/13/2013	Date Submitted:	12/16/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	CLAYEY SAND (SC), A-6 (1)		
Specification:	For Informational Purposes Only		
Location:	LSS-16A, 1'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	134
Corrected Maximum Dry Density (lb/ft³):	134
Optimum Moisture Content (%):	9
Corrected Optimum Moisture Content (%):	9
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 26; PI = 11
Percent Retained on #4 Sieve = 9.4%; Percent Passing #200 Sieve = 38.8%

Proctor Report

Report No: PTR:W14-000057-S20**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

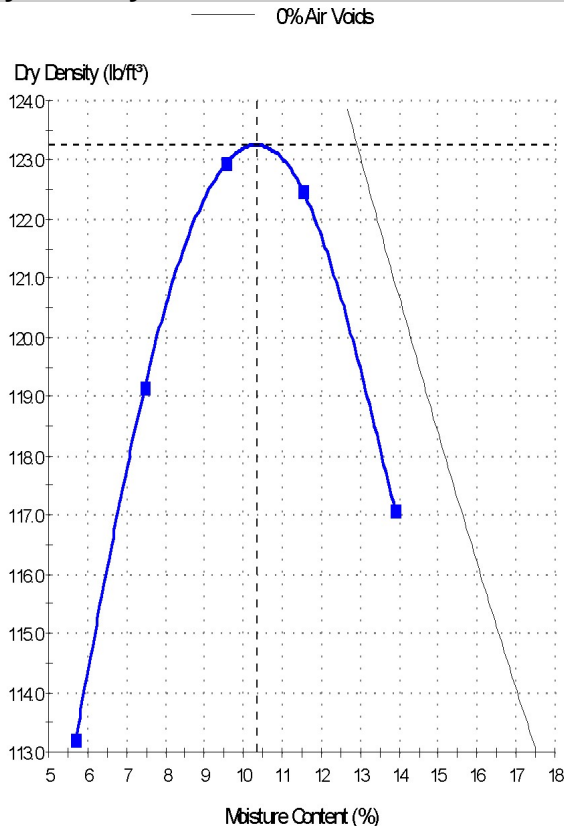


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S20	Alternate Sample ID:	LSS-17, 1'-10'
Date Sampled:	12/13/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (8)		
Specification:	For Informational Purposes Only		
Location:	LSS-17, 1'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	123
Corrected Maximum Dry Density (lb/ft³):	123
Optimum Moisture Content (%):	10
Corrected Optimum Moisture Content (%):	10
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 37; PI = 22
Percent Retained on #4 Sieve = 4.8%; Percent Passing #200 Sieve = 54.4%

Proctor Report

Report No: PTR:W14-000057-S21**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

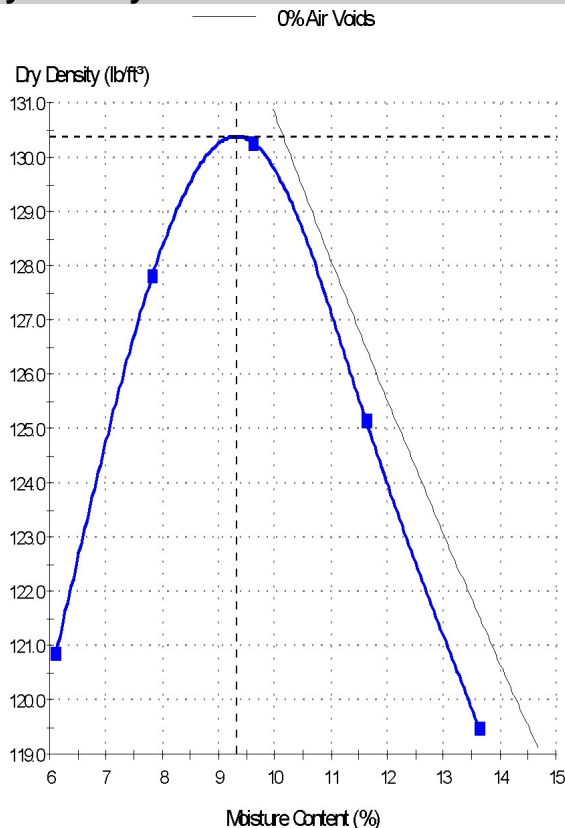


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S21	Alternate Sample ID:	LSS-18, 0.9'-10'
Date Sampled:	12/13/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (8)		
Specification:	For Informational Purposes Only		
Location:	LSS-18, 0.9'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	130
Corrected Maximum Dry Density (lb/ft³):	130
Optimum Moisture Content (%):	9
Corrected Optimum Moisture Content (%):	9
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 38; PI = 24
Percent Retained on #4 Sieve = 13.4%; Percent Passing #200 Sieve = 51.6%

Proctor Report

Report No: PTR:W14-000057-S22**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

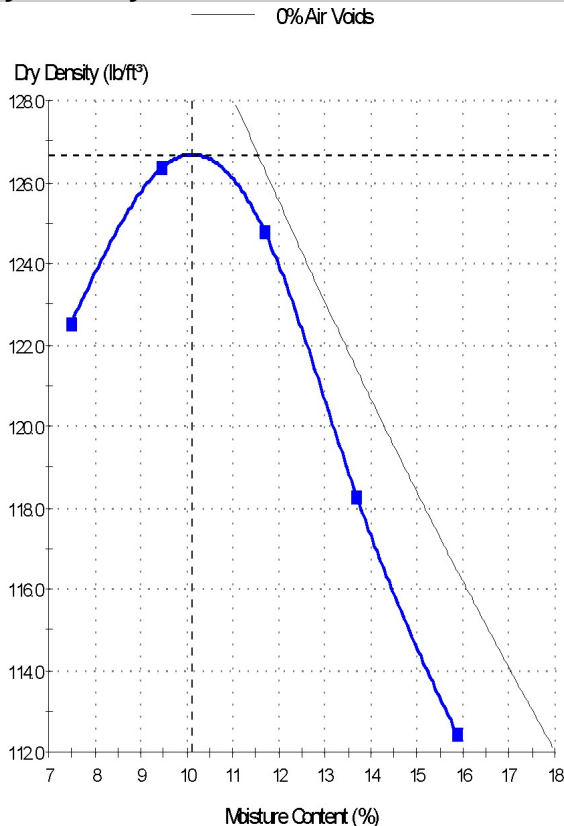


Ryan Anderson
Engineer in Training
Date of Issue: 3/18/2014

Sample Details

Sample ID:	W14-000057-S22	Alternate Sample ID:	LSS-19, 0.9'-10'
Date Sampled:	12/13/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (5)		
Specification:	For Informational Purposes Only		
Location:	LSS-19, 0.9'-10'		
Date Tested:	2/5/2014		

Dry Density - Moisture Content Relationship



Test Results

— AASHTO T 180 - 01 —

Maximum Dry Density (lb/ft³):	127
Corrected Maximum Dry Density (lb/ft³):	127
Optimum Moisture Content (%):	10
Corrected Optimum Moisture Content (%):	10
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 31; PI = 16
Percent Retained on #4 Sieve = 2.1%; Percent Passing #200 Sieve = 51.9%

Proctor Report

Report No: PTR:W14-000057-S23**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

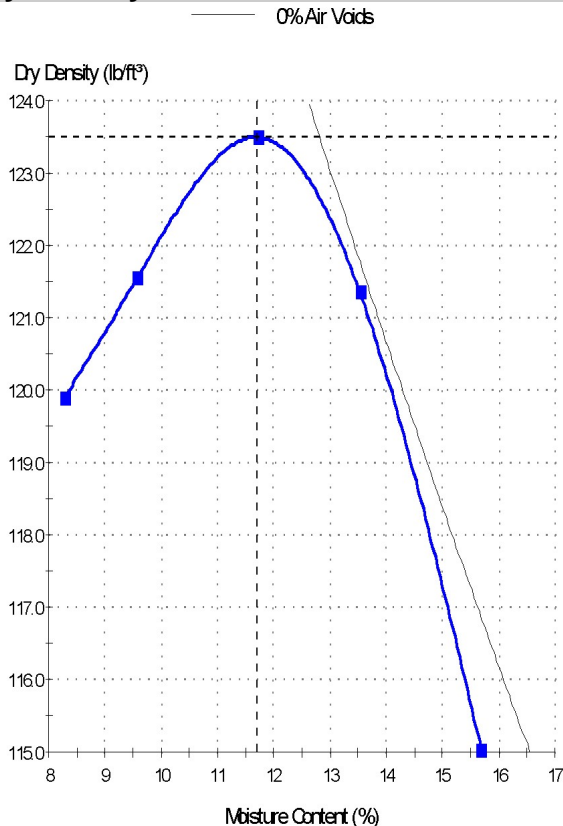


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S23	Alternate Sample ID:	LSS-20, 1'-6'
Date Sampled:	12/13/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-6 (11)		
Specification:	For Informational Purposes Only		
Location:	LSS-20, 1'-6'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	123
Corrected Maximum Dry Density (lb/ft³):	123
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 35; PI = 17
Percent Retained on #4 Sieve = 3.8%; Percent Passing #200 Sieve = 75.2%

Proctor Report

Report No: PTR:W14-000057-S24**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com



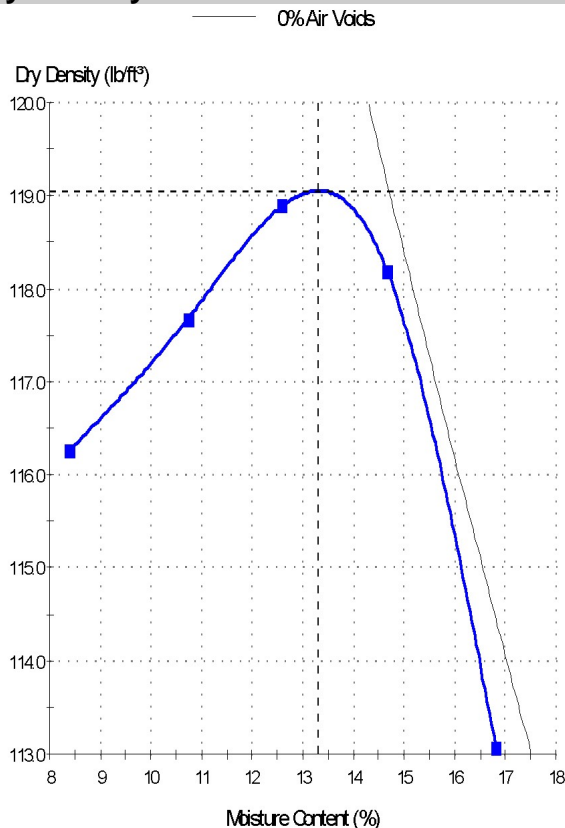
Ryan Anderson
Engineer in Training
Date of Issue: 6/12/2014

Sample Details

Sample ID: W14-000057-S24
Date Sampled: 12/13/2013
Sampled By: Jeff Logan
Source: Highway 1804 Subgrade
Material: LEAN CLAY (CL); A-6 (17)
Specification: For Informational Purposes Only
Location: LSS-21, 1.6'-6'
Date Tested: 2/4/2014

Alternate Sample ID: LSS-21, 1.6'-6'
Date Submitted: 12/18/2013
Sampling Method: Soil Boring Auger

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	119
Corrected Maximum Dry Density (lb/ft³):	119
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 40; PI = 19
Percent Retained on #4 Sieve = 1.3%; Percent Passing #200 Sieve = 87.0%

Proctor Report

Report No: PTR:W14-000057-S25**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

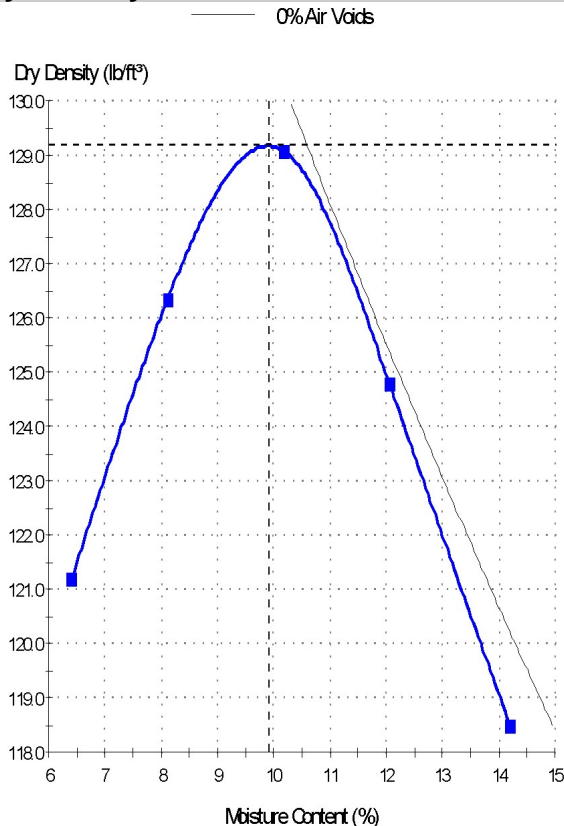


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S25	Alternate Sample ID:	LSS-22, 1.1'-10'
Date Sampled:	12/13/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (11)		
Specification:	For Informational Purposes Only		
Location:	LSS-22, 1.1'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	129
Corrected Maximum Dry Density (lb/ft³):	129
Optimum Moisture Content (%):	10
Corrected Optimum Moisture Content (%):	10
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 37; PI = 24
Percent Retained on #4 Sieve = 4.8%; Percent Passing #200 Sieve = 58.8%

Proctor Report

Report No: PTR:W14-000057-S26**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

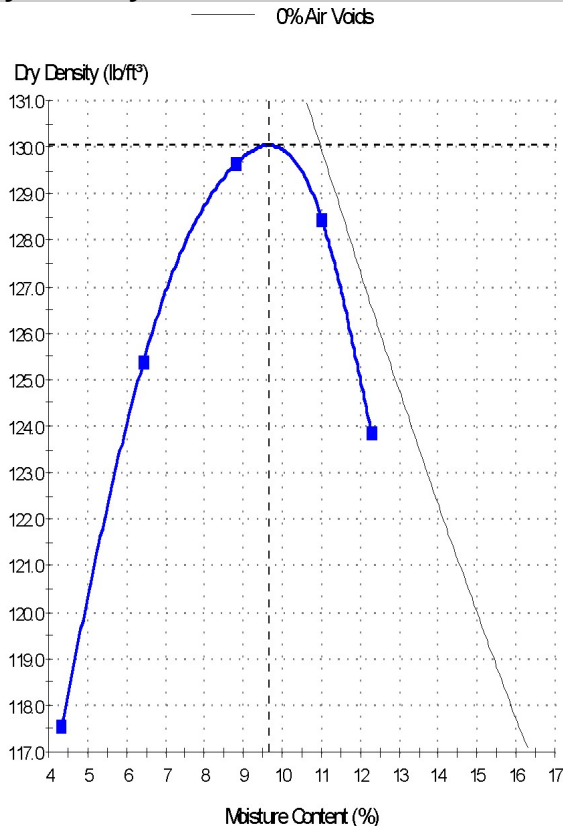


Ryan Anderson
Engineer in Training
Date of Issue: 6/9/2014

Sample Details

Sample ID:	W14-000057-S26	Alternate Sample ID:	LSS-23, 1'-10'
Date Sampled:	12/16/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (7)		
Specification:	For Informational Purposes Only		
Location:	LSS-23, 1'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	130
Corrected Maximum Dry Density (lb/ft³):	130
Optimum Moisture Content (%):	10
Corrected Optimum Moisture Content (%):	10
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 34; PI = 19
Percent Retained on #4 Sieve = 7.5%; Percent Passing #200 Sieve = 55.2%

Proctor Report

Report No: PTR:W14-000057-S27**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

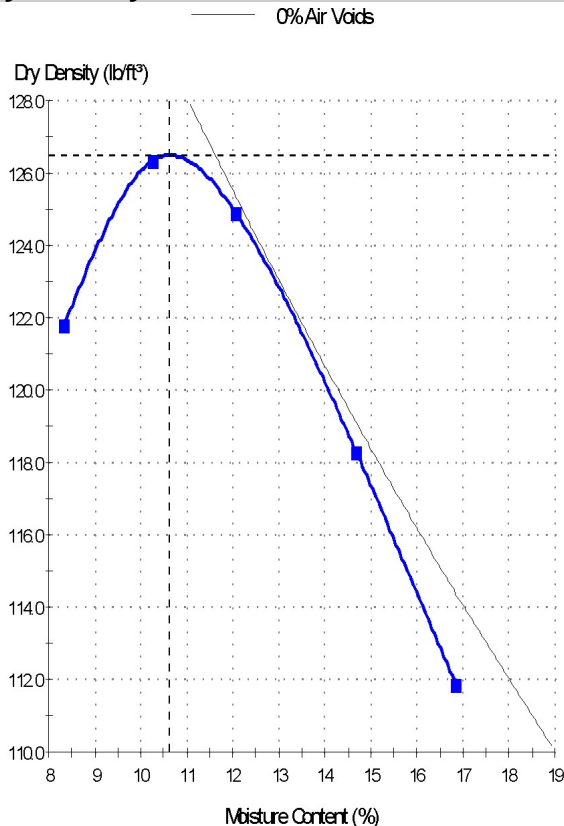


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S27	Alternate Sample ID:	LSS-24, 0.9'-10'
Date Sampled:	12/16/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (13)		
Specification:	For Informational Purposes Only		
Location:	LSS-24, 0.9'-10'		
Date Tested:	2/11/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	126
Corrected Maximum Dry Density (lb/ft³):	126
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 38; PI = 24
Percent Retained on #4 Sieve = 1.4%; Percent Passing #200 Sieve = 65.9%

Proctor Report

Report No: PTR:W14-000057-S28**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

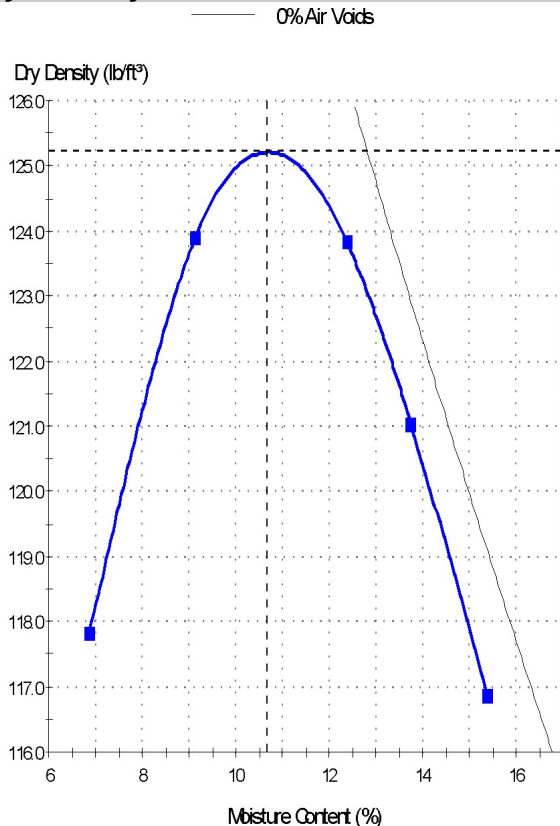


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S28	Alternate Sample ID:	LSS-25, 0.9'-10'
Date Sampled:	12/16/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (11)		
Specification:	For Informational Purposes Only		
Location:	LSS-25, 0.9'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	125
Corrected Maximum Dry Density (lb/ft³):	125
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 38; PI = 22
Percent Retained on #4 Sieve = 4.1%; Percent Passing #200 Sieve = 64.0%

Proctor Report

Report No: PTR:W14-000057-S29**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

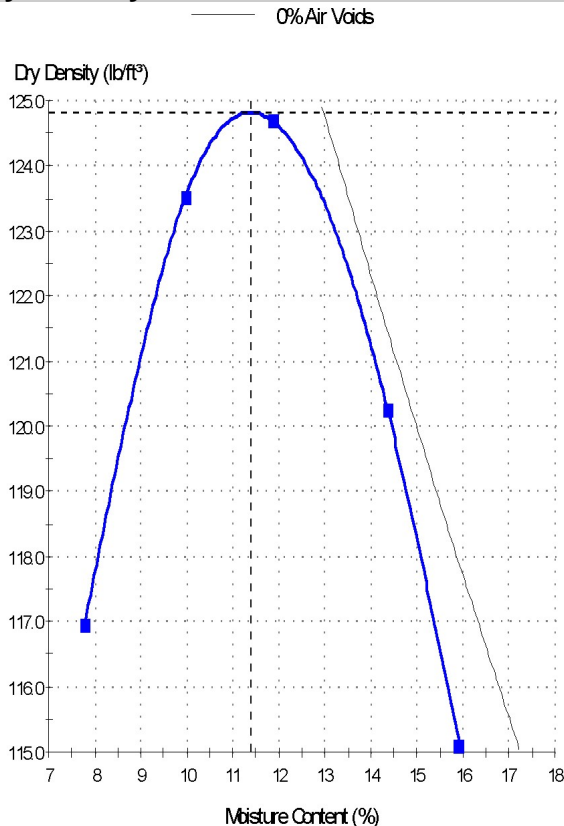


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S29	Alternate Sample ID:	LSS-26, 0.9'-10'
Date Sampled:	12/16/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (14)		
Specification:	For Informational Purposes Only		
Location:	LSS-26, 0.9'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	125
Corrected Maximum Dry Density (lb/ft³):	125
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 39; PI = 24
Percent Retained on #4 Sieve = 2.3%; Percent Passing #200 Sieve = 67.2%

Proctor Report

Report No: PTR:W14-000057-S30
Issue No: 1

Client: Jen Hanley
 Ulteig Engineers, Inc.
 3350 38th Ave South
 Fargo, ND, 58104

Project: BM-13-05525
 Highway 1804 Reconstruction
 Highway 1804
 New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

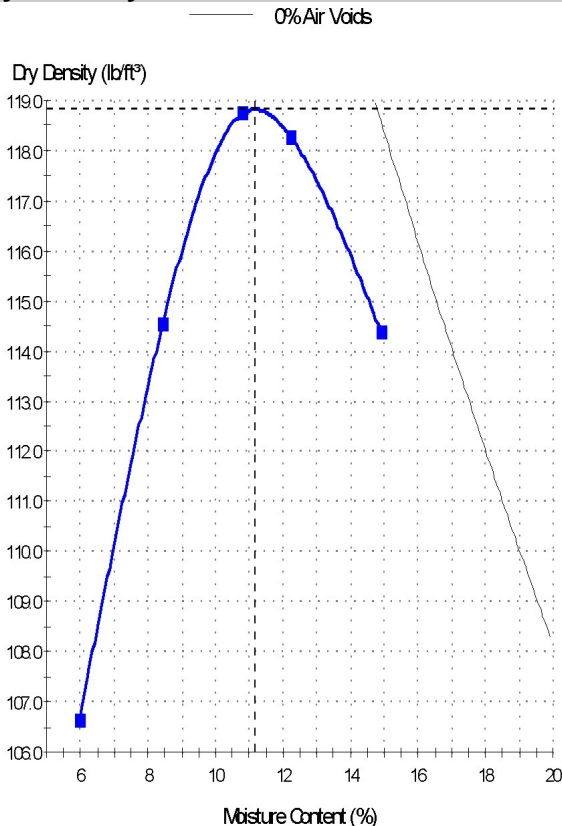


Ryan Anderson
 Engineer in Training
 Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S30	Alternate Sample ID:	LSS-27, 0.9'-10'
Date Sampled:	12/16/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-6 (15)		
Specification:	For Informational Purposes Only		
Location:	LSS-27, 0.9'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	119
Corrected Maximum Dry Density (lb/ft³):	119
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
 LL = 38; PI = 22
 Percent Retained on #4 Sieve = 5.0%; Percent Passing #200 Sieve = 74.8%

Proctor Report

Report No: PTR:W14-000057-S31**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

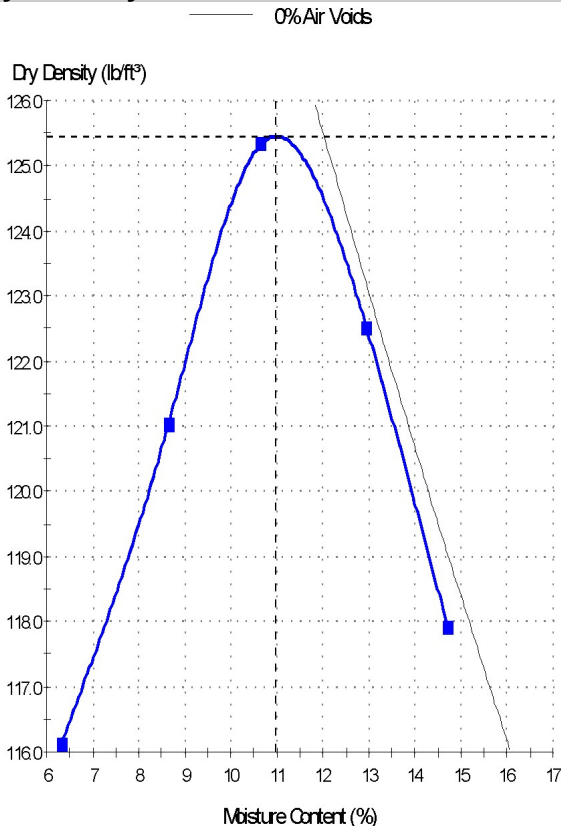


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S31	Alternate Sample ID:	LSS-28, 0.9'-10'
Date Sampled:	12/16/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-6 (15)		
Specification:	For Informational Purposes Only		
Location:	LSS-28, 0.9'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	125
Corrected Maximum Dry Density (lb/ft³):	125
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 39; PI = 23
Percent Retained on #4 Sieve = 4.0%; Percent Passing #200 Sieve = 70.4%

Proctor Report

Report No: PTR:W14-000057-S32
Issue No: 1

Client: Jen Hanley
 Ulteig Engineers, Inc.
 3350 38th Ave South
 Fargo, ND, 58104

Project: BM-13-05525
 Highway 1804 Reconstruction
 Highway 1804
 New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

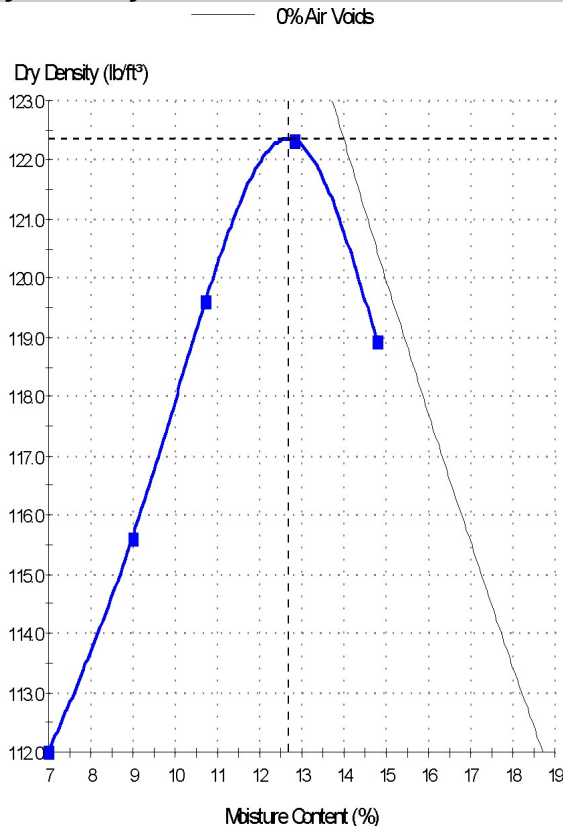


Ryan Anderson
 Engineer in Training
 Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S32	Alternate Sample ID:	LSS-29, 0.9'-10'
Date Sampled:	12/16/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-6 (15)		
Specification:	For Informational Purposes Only		
Location:	LSS-29, 0.9'-10'		
Date Tested:	2/4/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	122
Corrected Maximum Dry Density (lb/ft³):	122
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
 LL = 40; PI = 24
 Percent Retained on #4 Sieve = 2.9%; Percent Passing #200 Sieve = 70.2%

Proctor Report

Report No: PTR:W14-000057-S33
Issue No: 1

Client: Jen Hanley
 Ulteig Engineers, Inc.
 3350 38th Ave South
 Fargo, ND, 58104

Project: BM-13-05525
 Highway 1804 Reconstruction
 Highway 1804
 New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

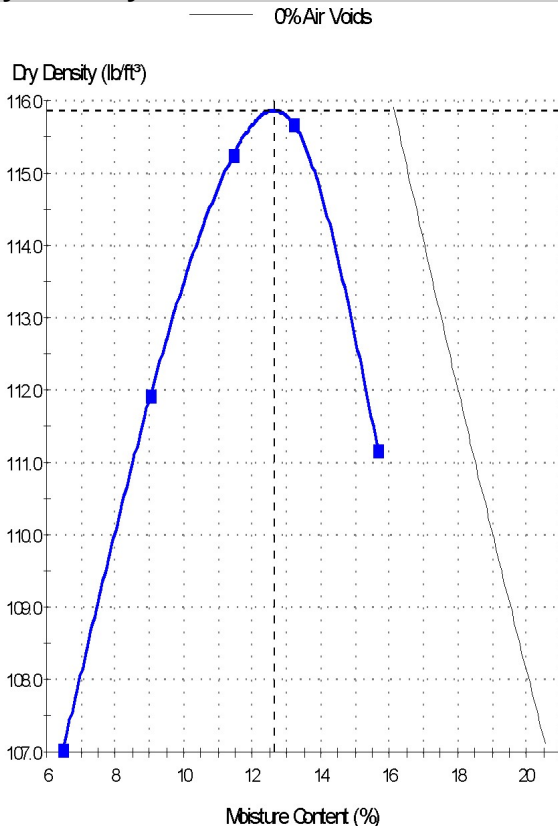


Ryan Anderson
 Engineer in Training
 Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S33	Alternate Sample ID:	LSS-30, 0.9'-10'
Date Sampled:	12/16/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-6 (15)		
Specification:	For Informational Purposes Only		
Location:	LSS-30, 0.9'-10'		
Date Tested:	2/6/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	116
Corrected Maximum Dry Density (lb/ft³):	116
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
 LL = 39; PI = 19
 Percent Retained on #4 Sieve = 1.2%; Percent Passing #200 Sieve = 80.7%

Proctor Report

Report No: PTR:W14-000057-S34**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

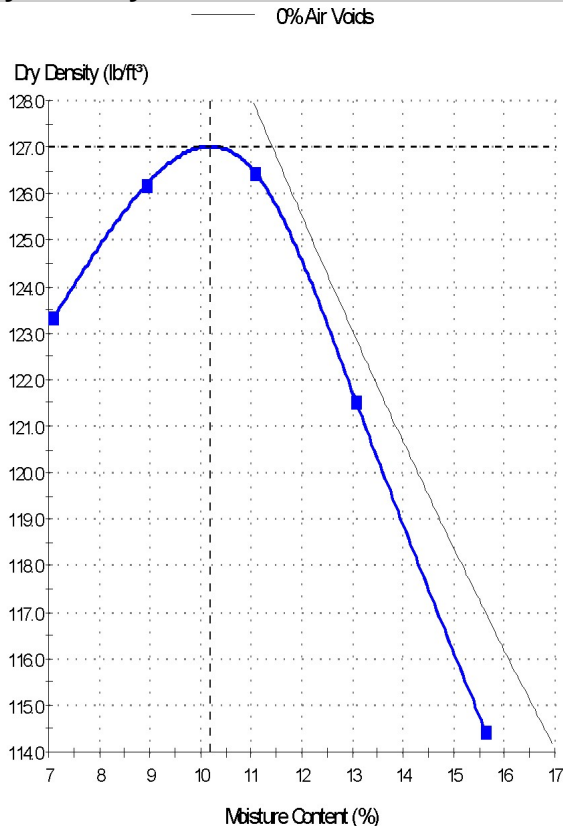


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S34	Alternate Sample ID:	LSS-31, 0.9'-4'
Date Sampled:	12/16/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (7)		
Specification:	For Informational Purposes Only		
Location:	LSS-31, 0.9'-4'		
Date Tested:	2/6/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	127
Corrected Maximum Dry Density (lb/ft³):	127
Optimum Moisture Content (%):	10
Corrected Optimum Moisture Content (%):	10
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 35; PI = 17
Percent Retained on #4 Sieve = 4.2%; Percent Passing #200 Sieve = 61.8%

Proctor Report

Report No: PTR:W14-000057-S35**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

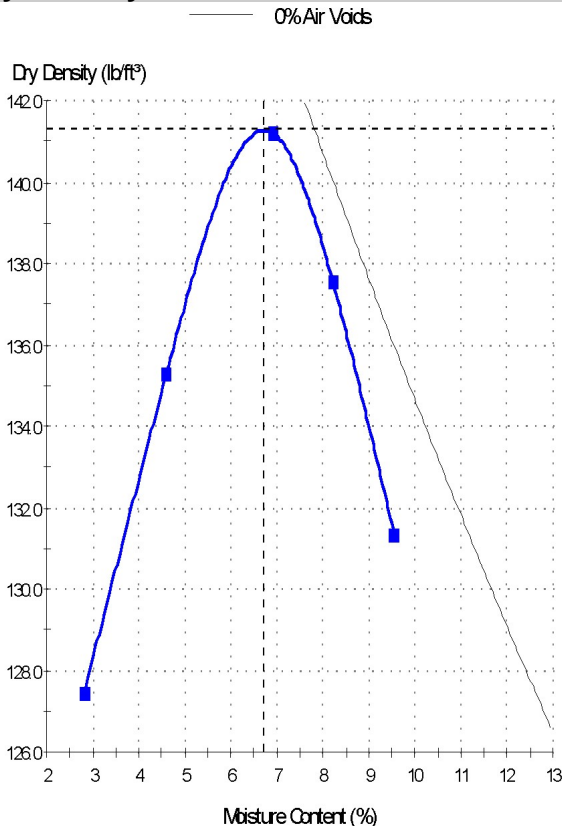


Ryan Anderson
Engineer in Training
Date of Issue: 3/18/2014

Sample Details

Sample ID:	W14-000057-S35	Alternate Sample ID:	LSS-31, 4'-10'
Date Sampled:	12/16/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	CLAYEY SAND with GRAVEL (SC); A-2-4 (0)		
Specification:	For Informational Purposes Only		
Location:	LSS-31, 4'-10'		
Date Tested:	2/6/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	141
Corrected Maximum Dry Density (lb/ft³):	141
Optimum Moisture Content (%):	7
Corrected Optimum Moisture Content (%):	7
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.75
LL = 25; PI = 9
Percent Retained on #4 Sieve = 28.7%; Percent Passing #200 Sieve = 22.2%

Proctor Report

Report No: PTR:W14-000057-S36**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

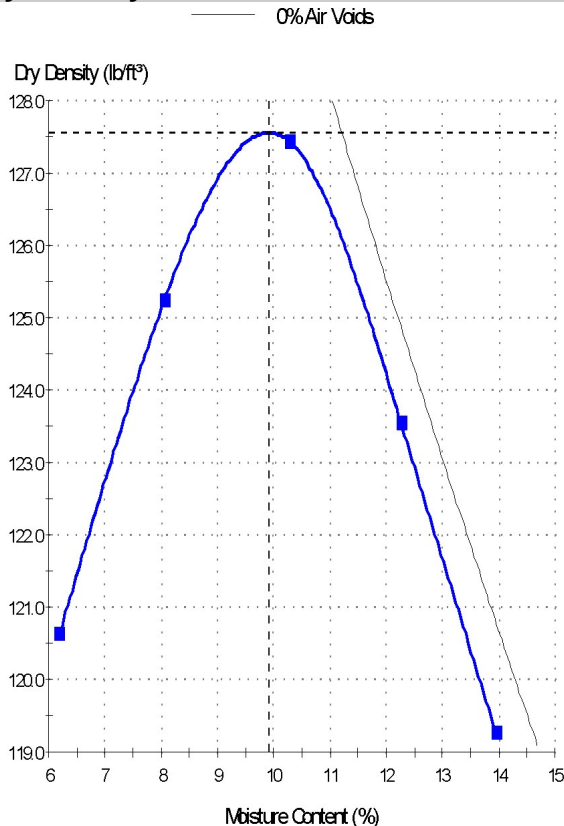


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S36	Alternate Sample ID:	LSS-32, 0.9'-7'
Date Sampled:	12/16/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (10)		
Specification:	For Informational Purposes Only		
Location:	LSS-32, 0.9'-7'		
Date Tested:	2/6/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	128
Corrected Maximum Dry Density (lb/ft³):	128
Optimum Moisture Content (%):	10
Corrected Optimum Moisture Content (%):	10
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 36; PI = 20
Percent Retained on #4 Sieve = 3.8%; Percent Passing #200 Sieve = 64.0%

Proctor Report

Report No: PTR:W14-000057-S37**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

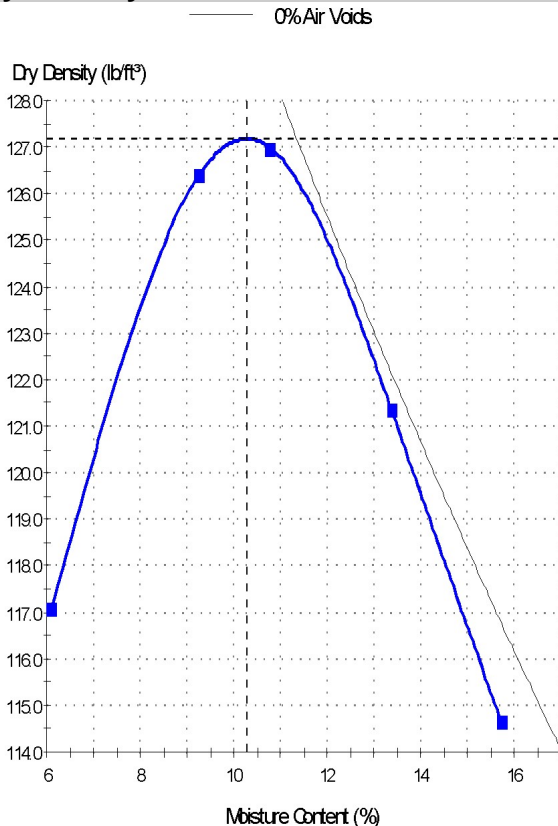


Ryan Anderson
Engineer in Training
Date of Issue: 5/14/2014

Sample Details

Sample ID:	W14-000057-S37	Alternate Sample ID:	LSS-33, 1'-10'
Date Sampled:	12/16/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (11)		
Specification:	For Informational Purposes Only		
Location:	LSS-33, 1'-10'		
Date Tested:	2/6/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	127
Corrected Maximum Dry Density (lb/ft³):	127
Optimum Moisture Content (%):	10
Corrected Optimum Moisture Content (%):	10
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 37; PI = 23
Percent Retained on #4 Sieve = 2.7%; Percent Passing #200 Sieve = 63.2%

Proctor Report

Report No: PTR:W14-000057-S38**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

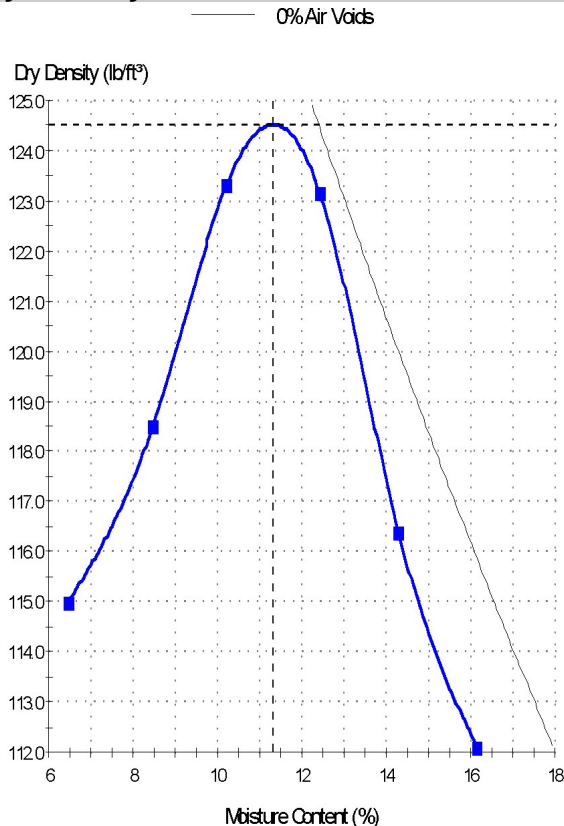


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S38	Alternate Sample ID:	LSS-34, 0.9'-10'
Date Sampled:	12/16/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (13)		
Specification:	For Informational Purposes Only		
Location:	LSS-34, 0.9'-10'		
Date Tested:	2/6/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	125
Corrected Maximum Dry Density (lb/ft³):	125
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 39; PI = 22
Percent Retained on #4 Sieve = 1.4%; Percent Passing #200 Sieve = 69.7%

Proctor Report

Report No: PTR:W14-000057-S39**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

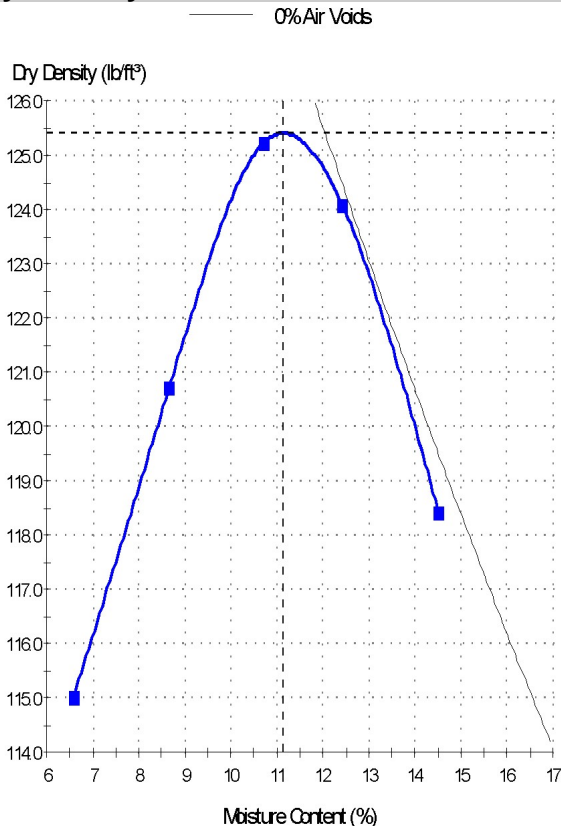


Ryan Anderson
Engineer in Training
Date of Issue: 6/9/2014

Sample Details

Sample ID:	W14-000057-S39	Alternate Sample ID:	LSS-35, 0.9'-10'
Date Sampled:	12/16/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (14)		
Specification:	For Informational Purposes Only		
Location:	LSS-35, 0.9'-10'		
Date Tested:	2/11/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	125
Corrected Maximum Dry Density (lb/ft³):	125
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 39; PI = 24
Percent Retained on #4 Sieve = 2.3%; Percent Passing #200 Sieve = 68.8%

Proctor Report

Report No: PTR:W14-000057-S40**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

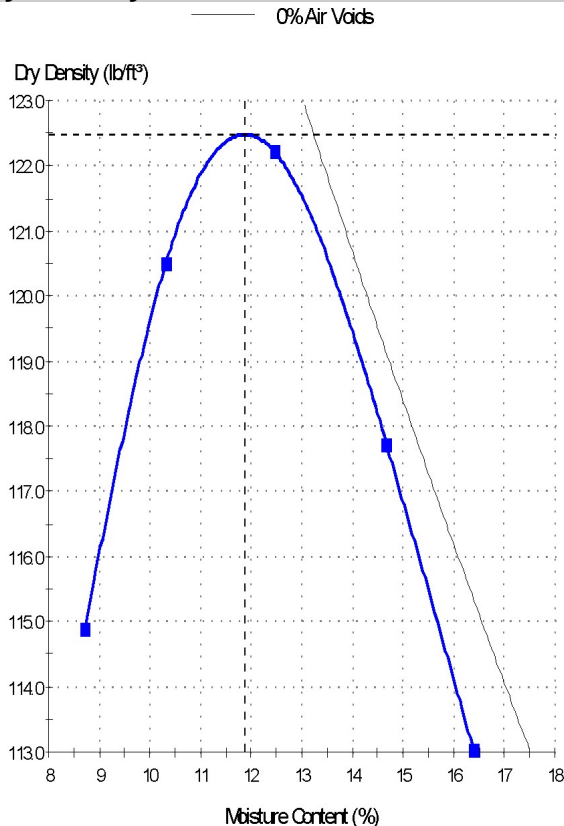


Ryan Anderson
Engineer in Training
Date of Issue: 6/9/2014

Sample Details

Sample ID:	W14-000057-S40	Alternate Sample ID:	LSS-36, 0.9'-10'
Date Sampled:	12/16/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-6 (16)		
Specification:	For Informational Purposes Only		
Location:	LSS-36, 0.9'-10'		
Date Tested:	2/11/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	122
Corrected Maximum Dry Density (lb/ft³):	122
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 40; PI = 23
Percent Retained on #4 Sieve = 2.7%; Percent Passing #200 Sieve = 75.3%

Proctor Report

Report No: PTR:W14-000057-S41**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

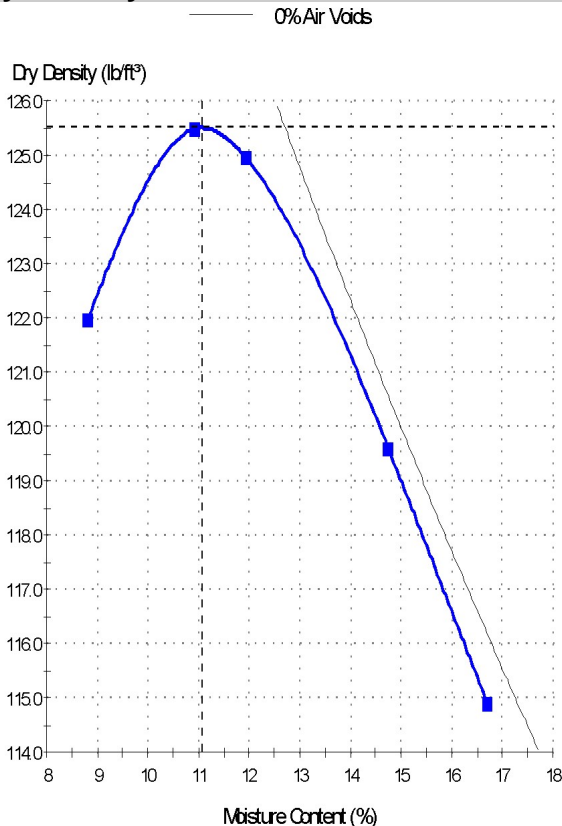


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S41	Alternate Sample ID:	LSS-37, 1'-10'
Date Sampled:	12/16/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (15)		
Specification:	For Informational Purposes Only		
Location:	LSS-37, 1'-10'		
Date Tested:	2/11/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	126
Corrected Maximum Dry Density (lb/ft³):	126
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 42; PI = 27
Percent Retained on #4 Sieve = 3.5%; Percent Passing #200 Sieve = 66.1%

Proctor Report

Report No: PTR:W14-000057-S42**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

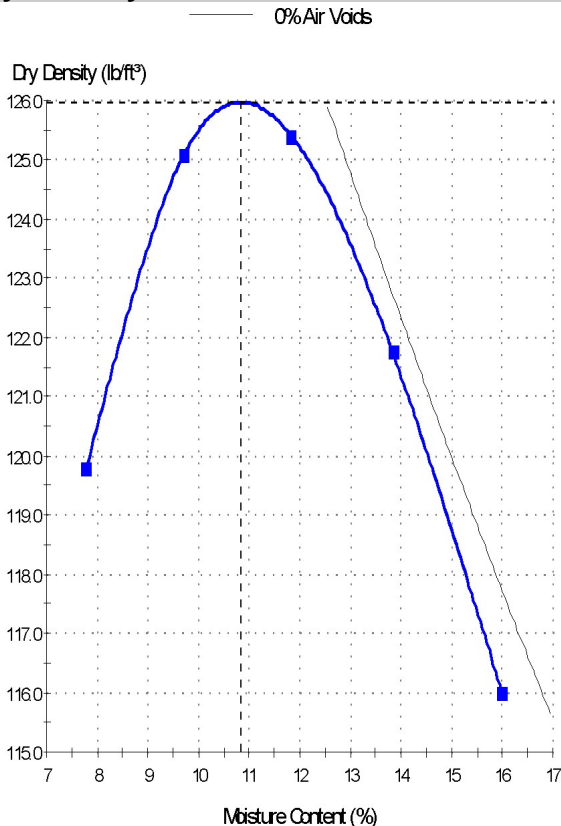


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S42	Alternate Sample ID:	LSS-38, 0.9'-10'
Date Sampled:	12/16/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (11)		
Specification:	For Informational Purposes Only		
Location:	LSS-38, 0.9'-10'		
Date Tested:	2/11/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	126
Corrected Maximum Dry Density (lb/ft³):	126
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 38; PI = 23
Percent Retained on #4 Sieve = 4.9%; Percent Passing #200 Sieve = 61.5%

Proctor Report

Report No: PTR:W14-000057-S43**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

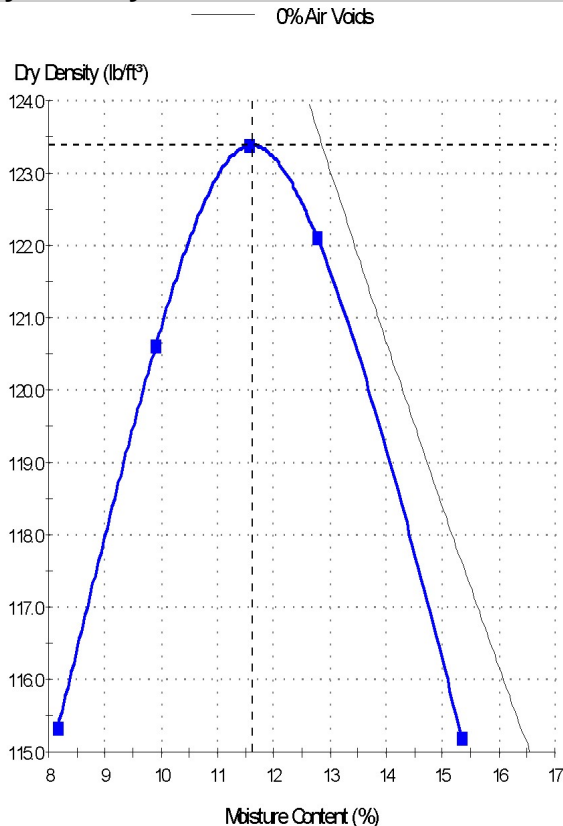


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S43	Alternate Sample ID:	LSS-39, 0.9'-10'
Date Sampled:	12/16/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (13)		
Specification:	For Informational Purposes Only		
Location:	LSS-39, 0.9'-10'		
Date Tested:	2/11/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	123
Corrected Maximum Dry Density (lb/ft³):	123
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 41; PI = 25
Percent Retained on #4 Sieve = 3.8%; Percent Passing #200 Sieve = 64.1%

Proctor Report

Report No: PTR:W14-000057-S44**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

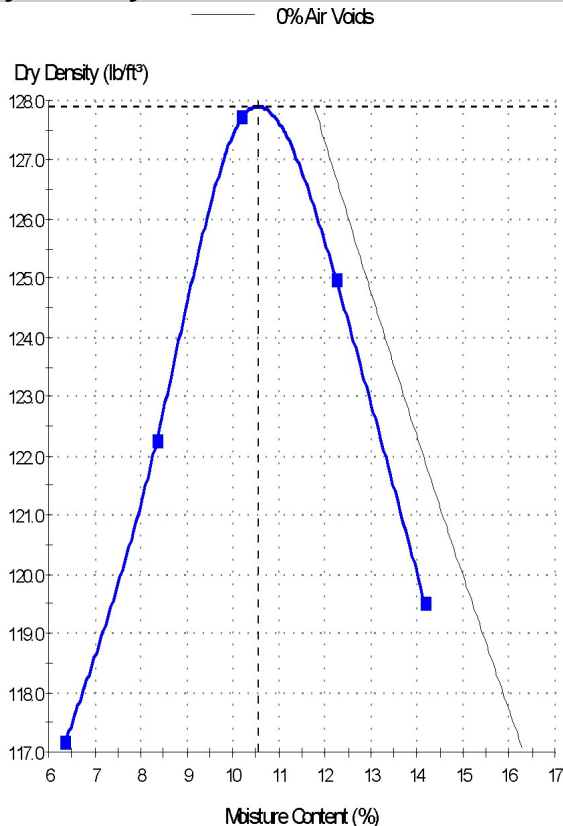


Ryan Anderson
Engineer in Training
Date of Issue: 6/9/2014

Sample Details

Sample ID:	W14-000057-S44	Alternate Sample ID:	LSS-40, 0.9'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (12)		
Specification:	For Informational Purposes Only		
Location:	LSS-40, 0.9'-10'		
Date Tested:	2/11/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	128
Corrected Maximum Dry Density (lb/ft³):	128
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 38; PI = 24
Percent Retained on #4 Sieve = 4.2%; Percent Passing #200 Sieve = 62.7%

Proctor Report

Report No: PTR:W14-000057-S45**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

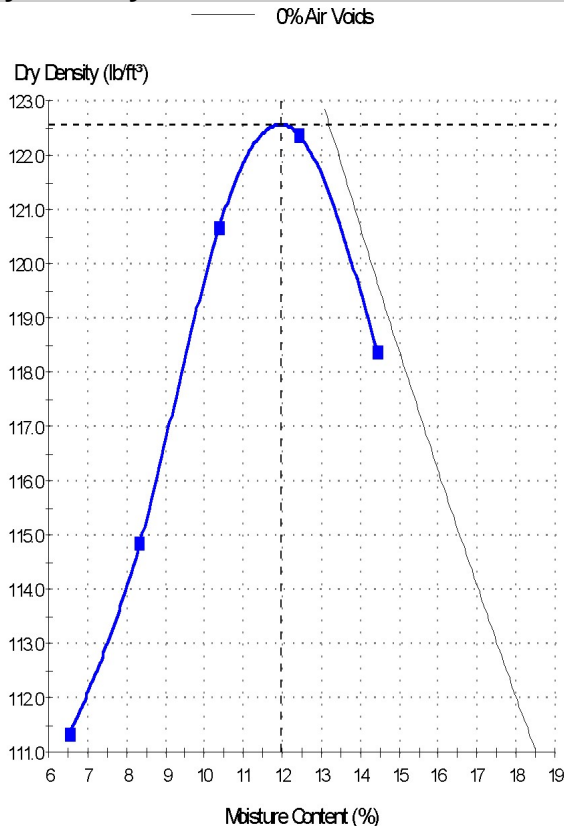


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S45	Alternate Sample ID:	LSS-41, 0.9'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (10)		
Specification:	For Informational Purposes Only		
Location:	LSS-41, 0.9'-10'		
Date Tested:	2/13/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	123
Corrected Maximum Dry Density (lb/ft³):	123
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 37; PI = 21
Percent Retained on #4 Sieve = 4.5%; Percent Passing #200 Sieve = 62.5%

Proctor Report

Report No: PTR:W14-000057-S46**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

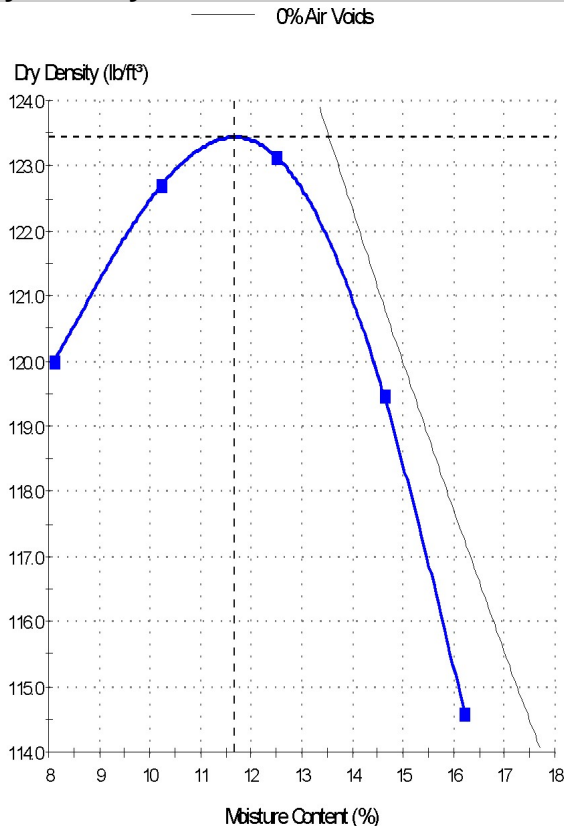


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S46	Alternate Sample ID:	LSS-42, 0.9'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-6 (15)		
Specification:	For Informational Purposes Only		
Location:	LSS-42, 0.9'-10'		
Date Tested:	2/13/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	123
Corrected Maximum Dry Density (lb/ft³):	123
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 40; PI = 23
Percent Retained on #4 Sieve = 0.8%; Percent Passing #200 Sieve = 74.1%

Proctor Report

Report No: PTR:W14-000057-S47**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

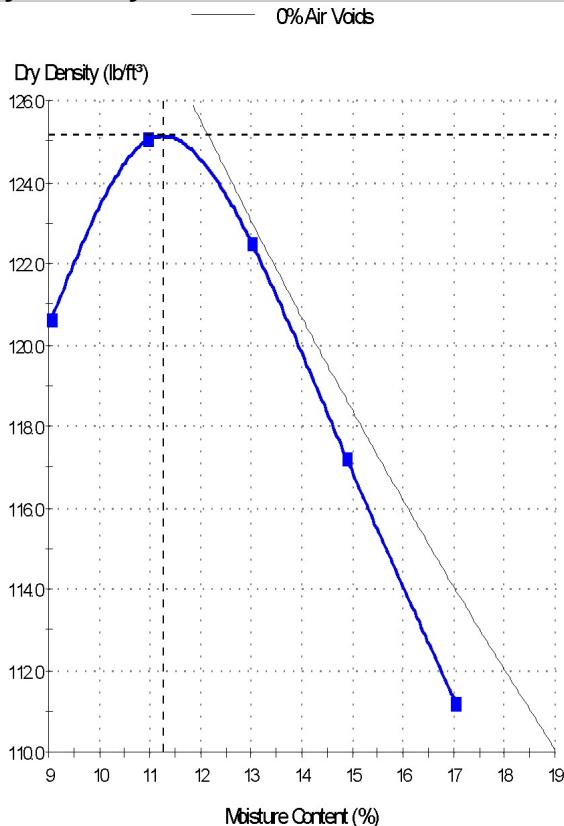


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S47	Alternate Sample ID:	LSS-43, 0.9'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (10)		
Specification:	For Informational Purposes Only		
Location:	LSS-43, 0.9'-10'		
Date Tested:	2/13/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	125
Corrected Maximum Dry Density (lb/ft³):	125
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 37; PI = 21
Percent Retained on #4 Sieve = 4.3%; Percent Passing #200 Sieve = 61.7%

Proctor Report

Report No: PTR:W14-000057-S48**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

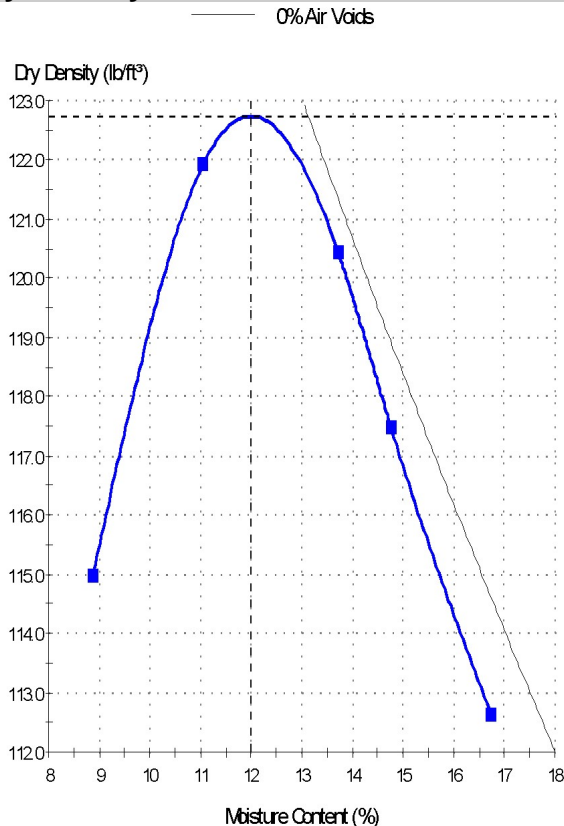


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S48	Alternate Sample ID:	LSS-44, 1'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (15)		
Specification:	For Informational Purposes Only		
Location:	LSS-44, 1'-10'		
Date Tested:	2/13/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	123
Corrected Maximum Dry Density (lb/ft³):	123
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 43; PI = 27
Percent Retained on #4 Sieve = 3.9%; Percent Passing #200 Sieve = 64.9%

Proctor Report

Report No: PTR:W14-000057-S49**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

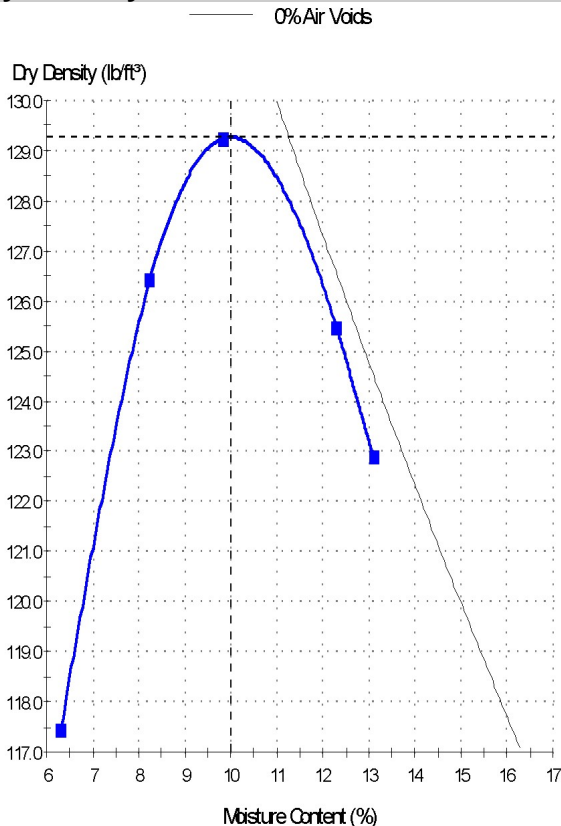


Ryan Anderson
Engineer in Training
Date of Issue: 6/9/2014

Sample Details

Sample ID:	W14-000057-S49	Alternate Sample ID:	LSS-45, 1'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (13)		
Specification:	For Informational Purposes Only		
Location:	LSS-45, 1'-10'		
Date Tested:	2/13/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	129
Corrected Maximum Dry Density (lb/ft³):	129
Optimum Moisture Content (%):	10
Corrected Optimum Moisture Content (%):	10
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 40; PI = 25
Percent Retained on #4 Sieve = 7.2%; Percent Passing #200 Sieve = 62.9%

Proctor Report

Report No: PTR:W14-000057-S50
Issue No: 1

Client: Jen Hanley
 Ulteig Engineers, Inc.
 3350 38th Ave South
 Fargo, ND, 58104

Project: BM-13-05525
 Highway 1804 Reconstruction
 Highway 1804
 New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

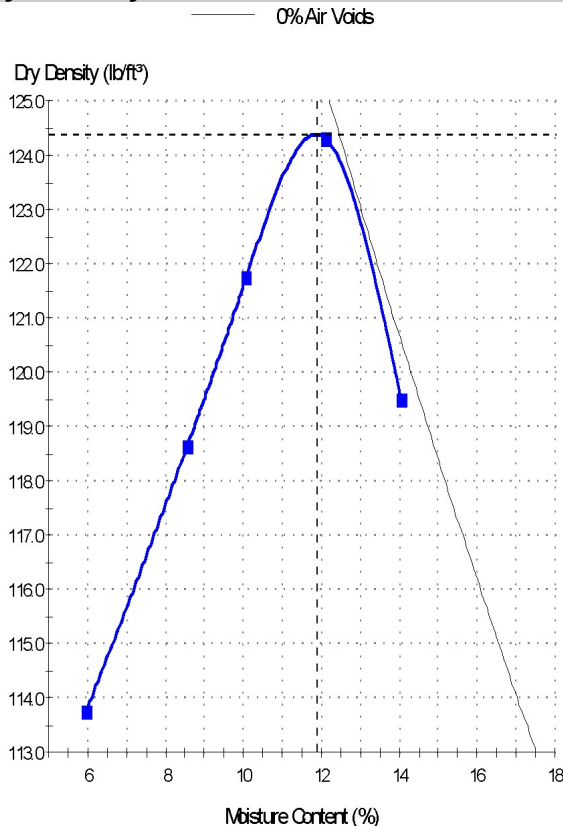


Ryan Anderson
 Engineer in Training
 Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S50	Alternate Sample ID:	LSS-46, 1'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (13)		
Specification:	For Informational Purposes Only		
Location:	LSS-46, 1'-10'		
Date Tested:	2/13/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	124
Corrected Maximum Dry Density (lb/ft³):	124
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
 LL = 38; PI = 23
 Percent Retained on #4 Sieve = 2.2%; Percent Passing #200 Sieve = 67.4%

Proctor Report

Report No: PTR:W14-000057-S51**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

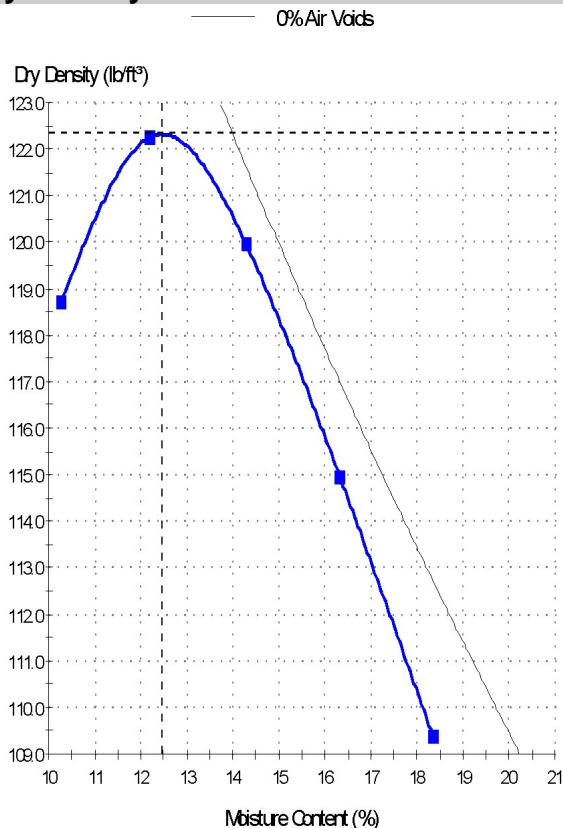


Ryan Anderson
Engineer in Training
Date of Issue: 5/14/2014

Sample Details

Sample ID:	W14-000057-S51	Alternate Sample ID:	LSS-47, 1.1'-8'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (14)		
Specification:	For Informational Purposes Only		
Location:	LSS-47, 1.1'-8'		
Date Tested:	2/18/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	122
Corrected Maximum Dry Density (lb/ft³):	122
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 41; PI = 25
Percent Retained on #4 Sieve = 4.7; Percent Passing #200 Sieve = 67.3%

Proctor Report

Report No: PTR:W14-000057-S52**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

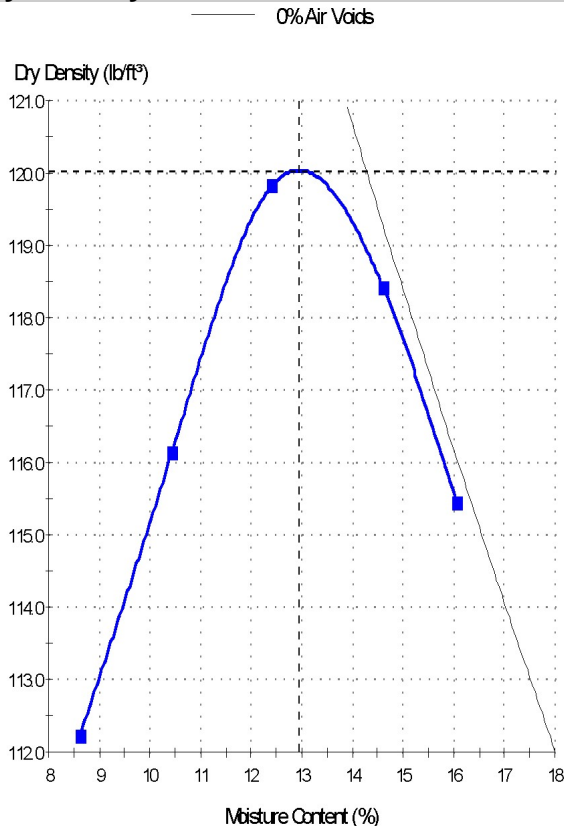


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S52	Alternate Sample ID:	LSS-48, 0.9'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (16)		
Specification:	For Informational Purposes Only		
Location:	LSS-48, 0.9'-10'		
Date Tested:	2/18/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	120
Corrected Maximum Dry Density (lb/ft³):	120
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 42; PI = 26
Percent Retained on #4 Sieve = 2.8%; Percent Passing #200 Sieve = 69.5%

Proctor Report

Report No: PTR:W14-000057-S53**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

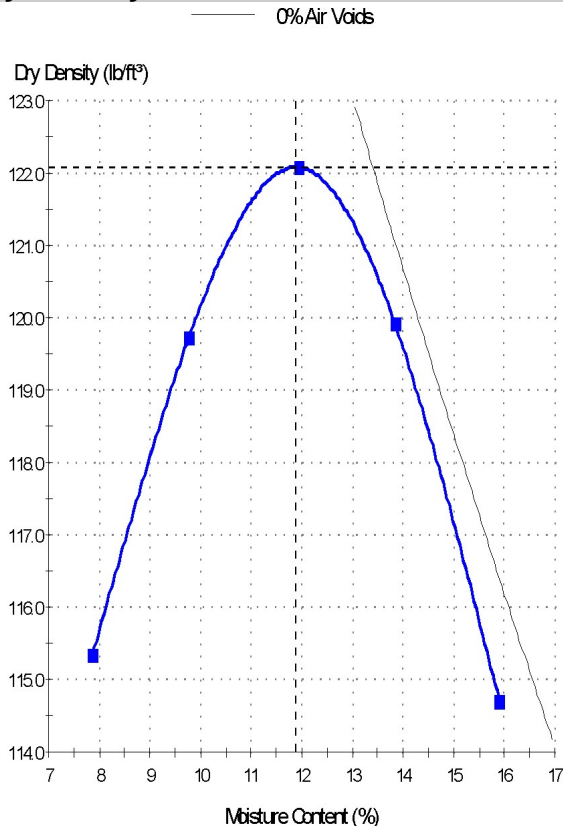


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S53	Alternate Sample ID:	LSS-49, 1'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (16)		
Specification:	For Informational Purposes Only		
Location:	LSS-49, 1'-10'		
Date Tested:	2/18/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	122
Corrected Maximum Dry Density (lb/ft³):	122
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 43; PI = 28
Percent Retained on #4 Sieve = 4.7%; Percent Passing #200 Sieve = 66.6%

Proctor Report

Report No: PTR:W14-000057-S54**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

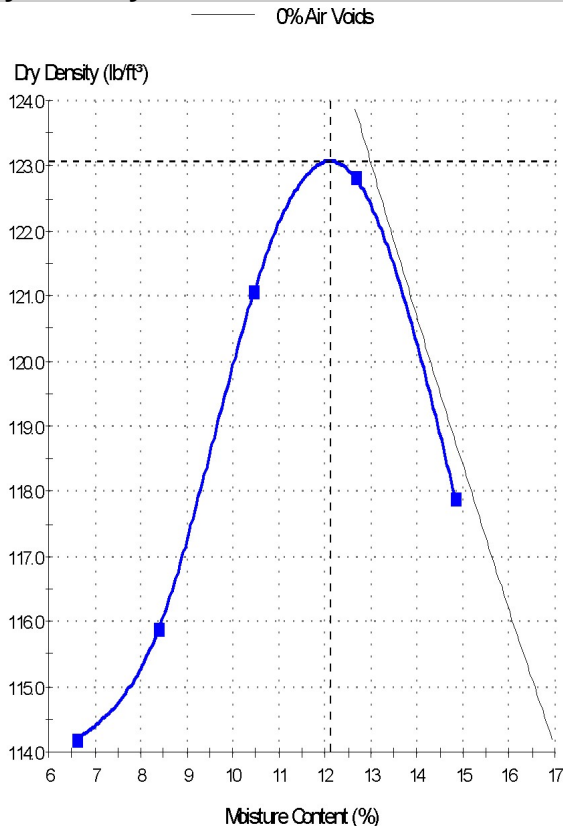


Ryan Anderson
Engineer in Training
Date of Issue: 3/7/2014

Sample Details

Sample ID:	W14-000057-S54	Alternate Sample ID:	LSS-50, 1'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (16)		
Specification:	For Informational Purposes Only		
Location:	LSS-50, 1'-10'		
Date Tested:	2/18/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	123
Corrected Maximum Dry Density (lb/ft³):	123
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 42; PI = 28
Percent Retained on #4 Sieve = 3.8%; Percent Passing #200 Sieve = 67.5%

Proctor Report

Report No: PTR:W14-000057-S55**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

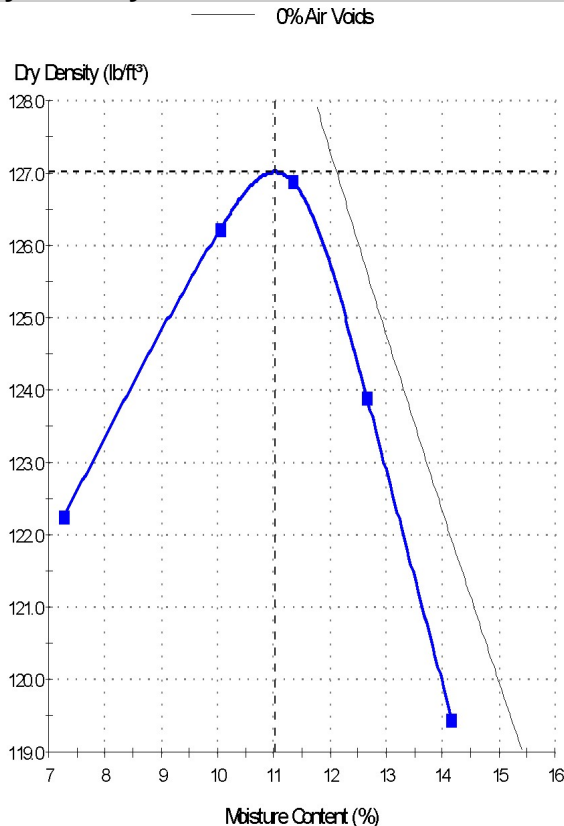


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000057-S55	Alternate Sample ID:	LSS-51, 1.1'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	CLAYEY SAND (SC); A-6 (6)		
Specification:	For Informational Purposes Only		
Location:	LSS-51, 1.1'-10'		
Date Tested:	2/18/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	127
Corrected Maximum Dry Density (lb/ft³):	127
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 38; PI = 21
Percent Retained on #4 Sieve = 11.2%; Percent Passing #200 Sieve = 49.1%

Proctor Report

Report No: PTR:W14-000057-S56**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

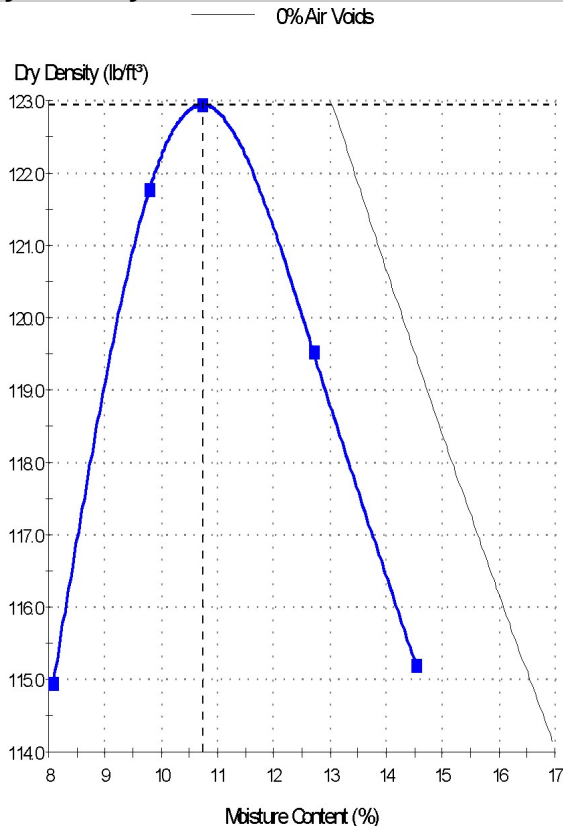


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000057-S56	Alternate Sample ID:	LSS-52, 1.2'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL), A-6 (10)		
Specification:	For Informational Purposes Only		
Location:	LSS-52, 1.2'-10'		
Date Tested:	2/18/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	123
Corrected Maximum Dry Density (lb/ft³):	123
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 39; PI = 23
Percent Retained on #4 Sieve = 6.0%; Percent Passing #200 Sieve = 57.1%

Proctor Report

Report No: PTR:W14-000057-S57**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com



Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000057-S57	Alternate Sample ID:	LSS-53, 1'-6'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	CLAYEY SAND (SC); A-6 (6)		
Specification:	For Informational Purposes Only		
Location:	LSS-53, 1'-6'		
Date Tested:	2/18/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	128
Corrected Maximum Dry Density (lb/ft³):	128
Optimum Moisture Content (%):	10
Corrected Optimum Moisture Content (%):	10
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 36; PI = 21
Percent Retained on #4 Sieve = 11.6%; Percent Passing #200 Sieve = 47.0%

Proctor Report

Report No: PTR:W14-000057-S58**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

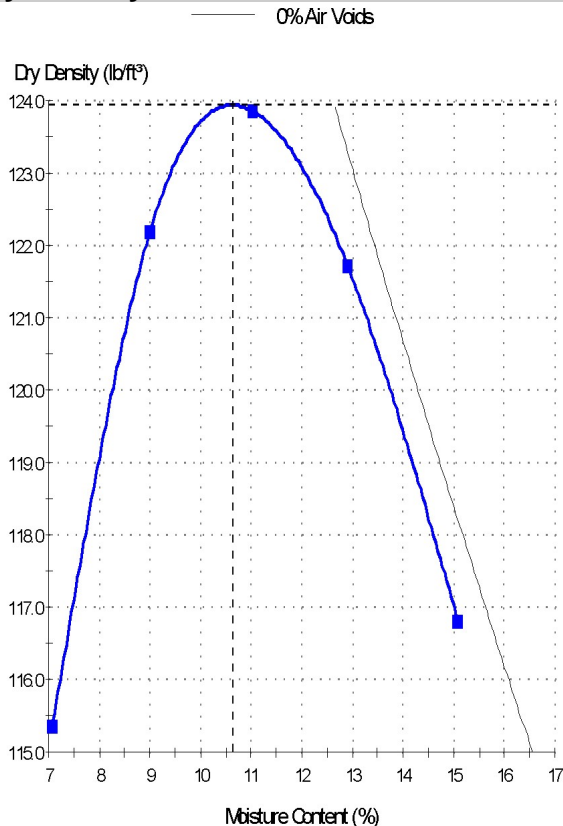


Ryan Anderson
Engineer in Training
Date of Issue: 3/18/2014

Sample Details

Sample ID:	W14-000057-S58	Alternate Sample ID:	LSS-54, 1'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (11)		
Specification:	For Informational Purposes Only		
Location:	LSS-54, 1'-10'		
Date Tested:	2/18/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	124
Corrected Maximum Dry Density (lb/ft³):	124
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 40; PI = 25
Percent Retained on #4 Sieve = 7.0%; Percent Passing #200 Sieve = 57.6%

Proctor Report

Report No: PTR:W14-000057-S59**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

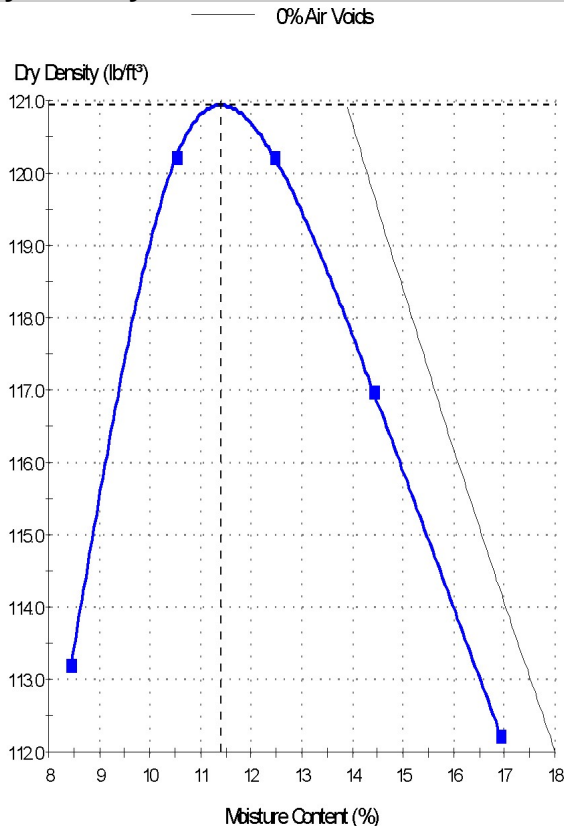


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000057-S59	Alternate Sample ID:	LSS-55, 1'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (12)		
Specification:	For Informational Purposes Only		
Location:	LSS-55, 1'-10'		
Date Tested:	2/18/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	121
Corrected Maximum Dry Density (lb/ft³):	121
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 39; PI = 25
Percent Retained on #4 Sieve = 3.0%; Percent Passing #200 Sieve = 61.6%

Proctor Report

Report No: PTR:W14-000057-S60
Issue No: 1

Client: Jen Hanley
 Ulteig Engineers, Inc.
 3350 38th Ave South
 Fargo, ND, 58104

Project: BM-13-05525
 Highway 1804 Reconstruction
 Highway 1804
 New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

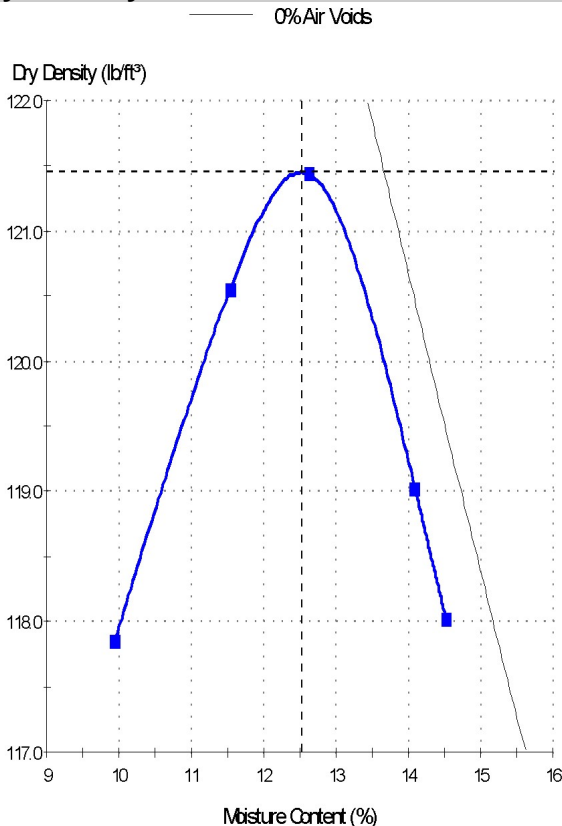


Ryan Anderson
 Engineer in Training
 Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000057-S60	Alternate Sample ID:	LSS-56, 1'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (9)		
Specification:	For Informational Purposes Only		
Location:	LSS-56, 1'-10'		
Date Tested:	2/18/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	121
Corrected Maximum Dry Density (lb/ft³):	121
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
 LL = 38; PI = 22
 Percent Retained on #4 Sieve = 8.6%; Percent Passing #200 Sieve = 56.1%

Proctor Report

Report No: PTR:W14-000057-S61
Issue No: 1

Client: Jen Hanley
 Ulteig Engineers, Inc.
 3350 38th Ave South
 Fargo, ND, 58104

Project: BM-13-05525
 Highway 1804 Reconstruction
 Highway 1804
 New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

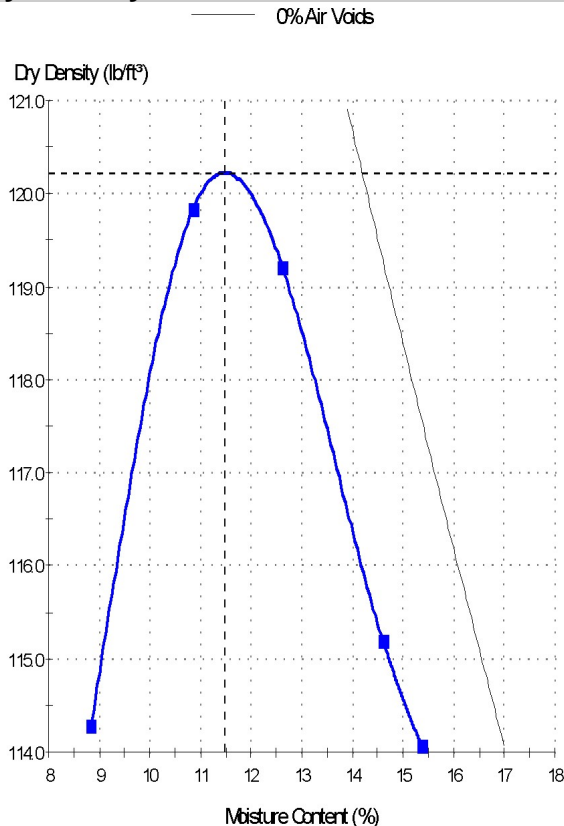


Ryan Anderson
 Engineer in Training
 Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000057-S61	Alternate Sample ID:	LSS-57, 0.9'-6'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (10)		
Specification:	For Informational Purposes Only		
Location:	LSS-57, 0.9'-6'		
Date Tested:	2/18/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	120
Corrected Maximum Dry Density (lb/ft³):	120
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
 LL = 37; PI = 23
 Percent Retained on #4 Sieve = 4.4%; Percent Passing #200 Sieve = 59.3%

Proctor Report

Report No: PTR:W14-000057-S62**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

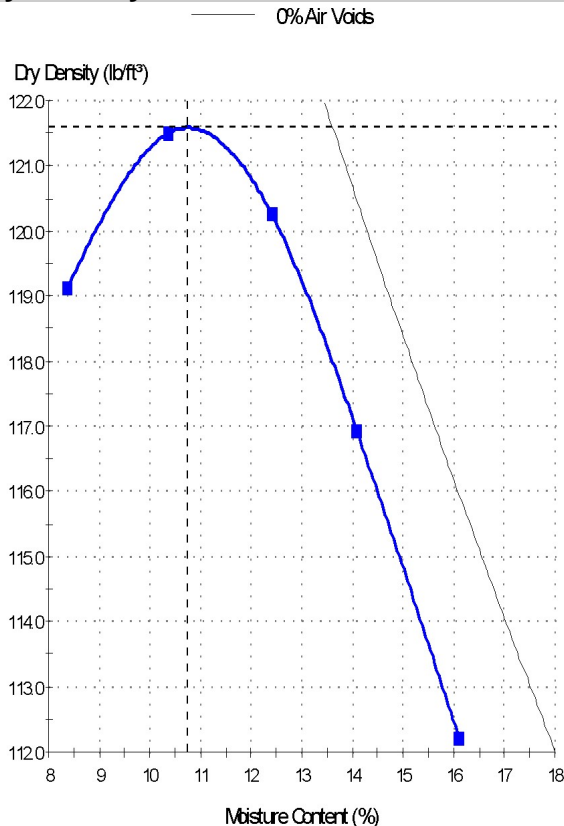


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000057-S62	Alternate Sample ID:	LSS-58, 0.9'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (13)		
Specification:	For Informational Purposes Only		
Location:	LSS-58, 0.9'-10'		
Date Tested:	2/18/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	122
Corrected Maximum Dry Density (lb/ft³):	122
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 40; PI = 25
Percent Retained on #4 Sieve = 2.6%; Percent Passing #200 Sieve = 63.3%

Proctor Report

Report No: PTR:W14-000057-S63
Issue No: 1

Client: Jen Hanley
 Ulteig Engineers, Inc.
 3350 38th Ave South
 Fargo, ND, 58104

Project: BM-13-05525
 Highway 1804 Reconstruction
 Highway 1804
 New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

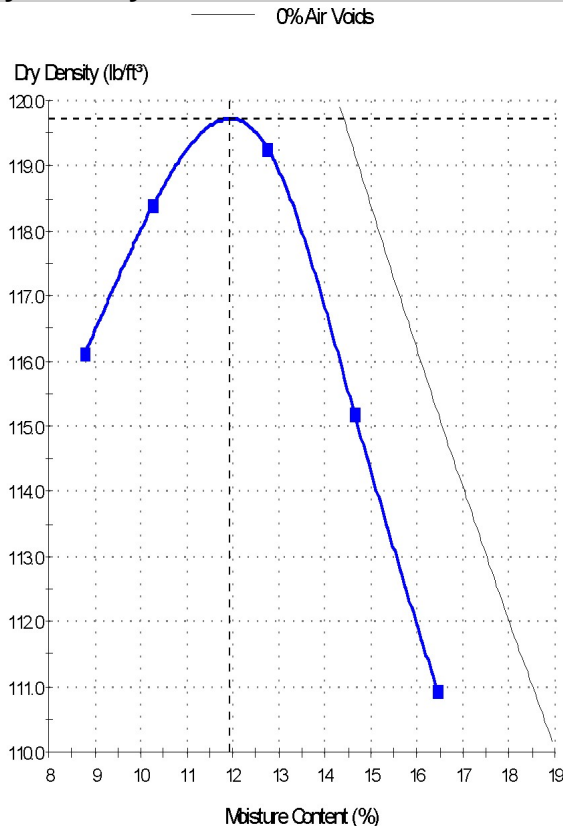


Ryan Anderson
 Engineer in Training
 Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000057-S63	Alternate Sample ID:	LSS-59, 1.1'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (11)		
Specification:	For Informational Purposes Only		
Location:	LSS-59, 1.1'-10'		
Date Tested:	2/18/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	120
Corrected Maximum Dry Density (lb/ft³):	120
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
 LL = 39; PI = 23
 Percent Retained on #4 Sieve = 4.7%; Percent Passing #200 Sieve = 61.9%

Proctor Report

Report No: PTR:W14-000057-S64**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

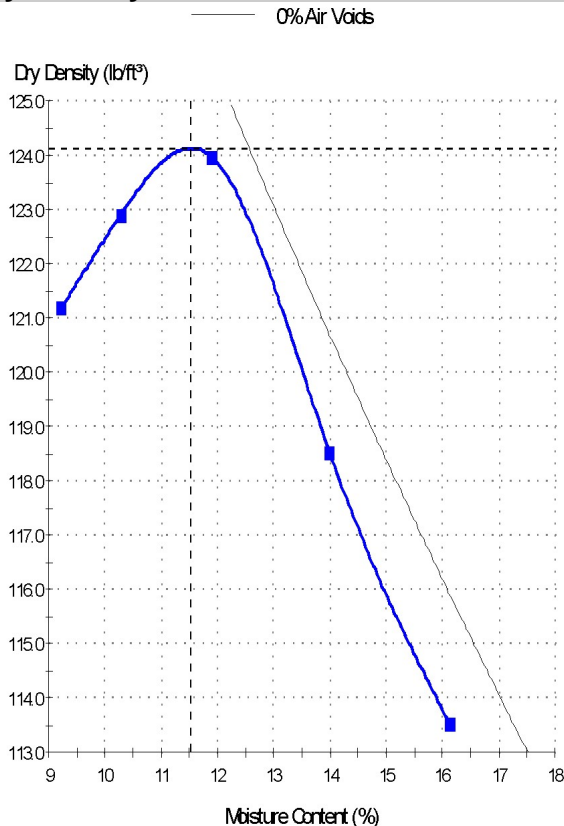


Ryan Anderson
Engineer in Training
Date of Issue: 6/9/2014

Sample Details

Sample ID:	W14-000057-S64	Alternate Sample ID:	LSS-60, 1'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (12)		
Specification:	For Informational Purposes Only		
Location:	LSS-60, 1'-10'		
Date Tested:	2/21/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	124
Corrected Maximum Dry Density (lb/ft³):	124
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 38; PI = 24
Percent Retained on #4 Sieve = 5.5%; Percent Passing #200 Sieve = 62.0%

Proctor Report

Report No: PTR:W14-000057-S65**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

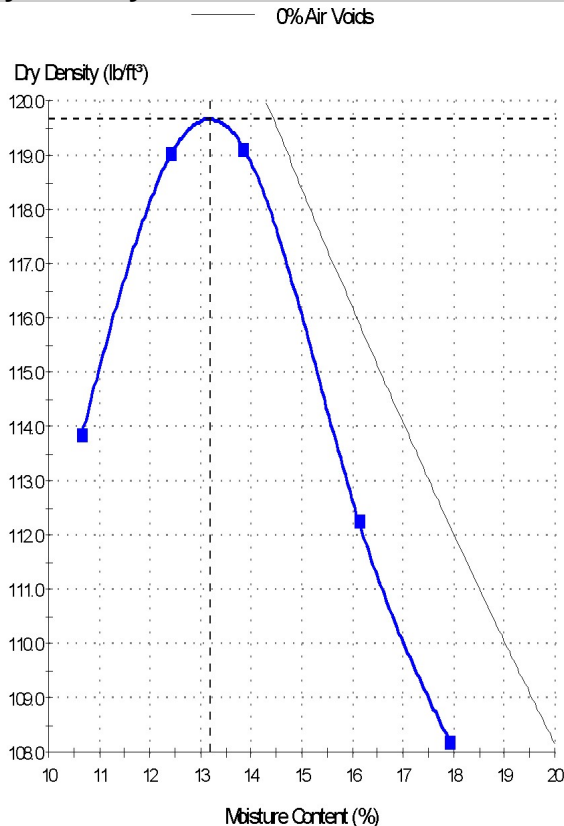


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000057-S65	Alternate Sample ID:	LSS-61, 1.1'-10'
Date Sampled:	12/17/2013	Date Submitted:	12/18/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (10)		
Specification:	For Informational Purposes Only		
Location:	LSS-61, 1.1'-10'		
Date Tested:	2/18/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	120
Corrected Maximum Dry Density (lb/ft³):	120
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 38; PI = 24
Percent Retained on #4 Sieve = 8.1%; Percent Passing #200 Sieve = 58.4%

Proctor Report

Report No: PTR:W14-000173-S1**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

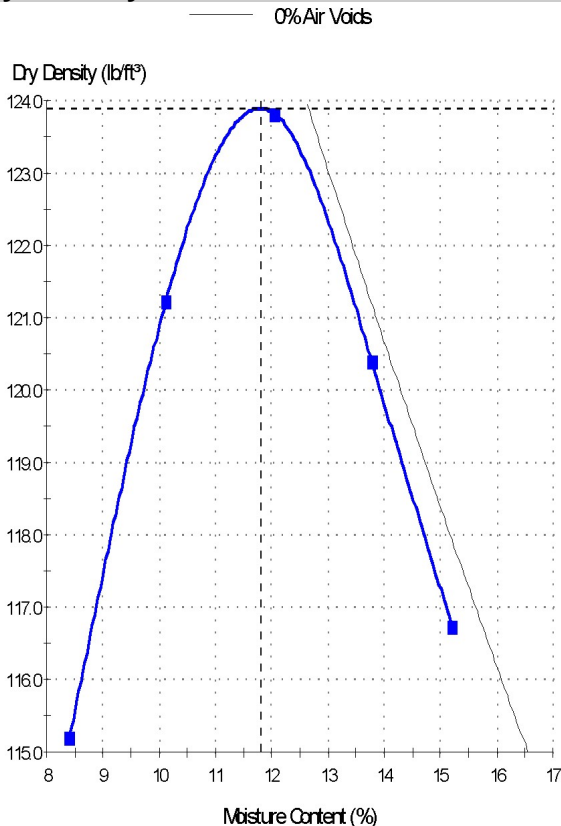


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S1	Alternate Sample ID:	LSS-62, 1'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (11)		
Specification:	For Informational Purposes Only		
Location:	LSS-62, 1'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	124
Corrected Maximum Dry Density (lb/ft³):	124
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 41; PI = 23
Percent Retained on #4 Sieve = 4.9%; Percent Passing #200 Sieve = 60.8%

Proctor Report

Report No: PTR:W14-000173-S2

Issue No: 1

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

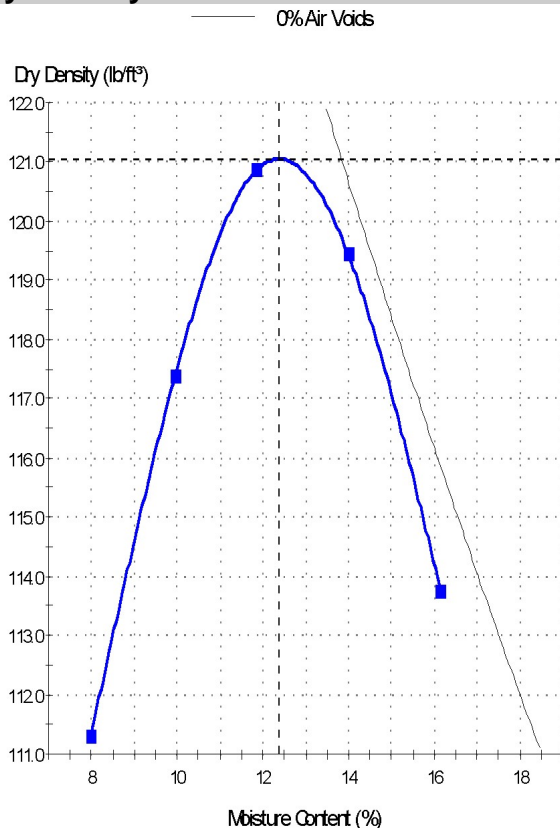


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S2	Alternate Sample ID:	LSS-63, 1'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (10)		
Specification:	For Informational Purposes Only		
Location:	LSS-63, 1'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	121
Corrected Maximum Dry Density (lb/ft³):	121
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 43; PI = 26
Percent Retained on #4 Sieve = 5.9%; Percent Passing #200 Sieve = 54.0%

Proctor Report

Report No: PTR:W14-000173-S3**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

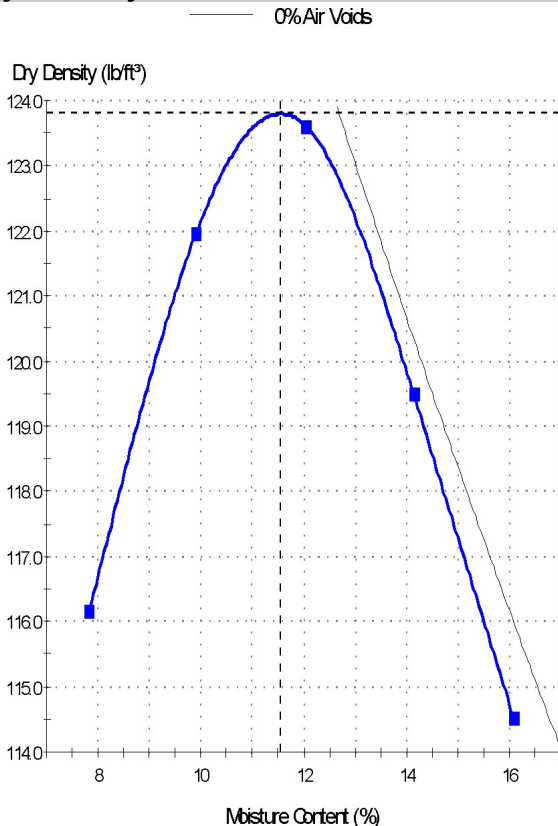


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S3	Alternate Sample ID:	LSS-64, 1'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (13)		
Specification:	For Informational Purposes Only		
Location:	LSS-64, 1'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	124
Corrected Maximum Dry Density (lb/ft³):	124
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 39; PI = 24
Percent Retained on #4 Sieve = 3.4%; Percent Passing #200 Sieve = 64.5%

Proctor Report

Report No: PTR:W14-000173-S4

Issue No: 1

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

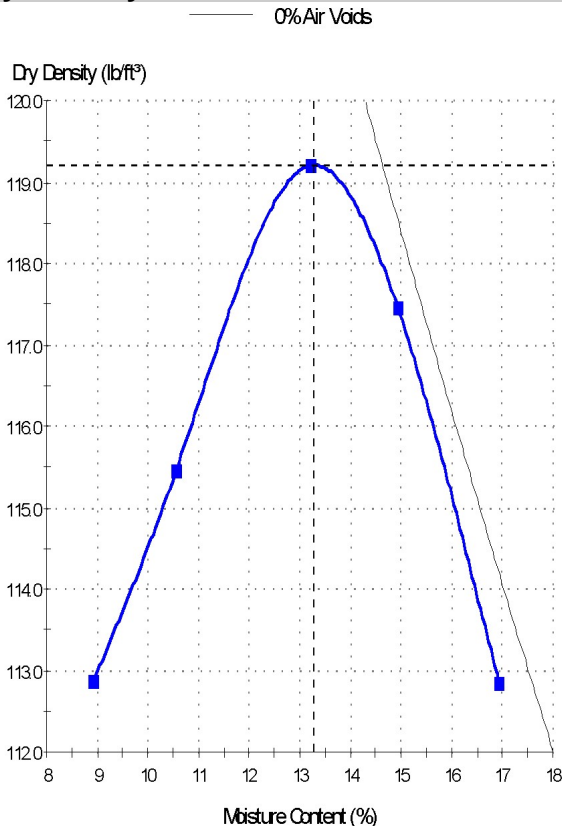


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S4	Alternate Sample ID:	LSS-65, 1'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (11)		
Specification:	For Informational Purposes Only		
Location:	LSS-65, 1'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	119
Corrected Maximum Dry Density (lb/ft³):	119
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 39; PI = 23
Percent Retained on #4 Sieve = 4.4%; Percent Passing #200 Sieve = 62.2%

Proctor Report

Report No: PTR:W14-000173-S5

Issue No: 1

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

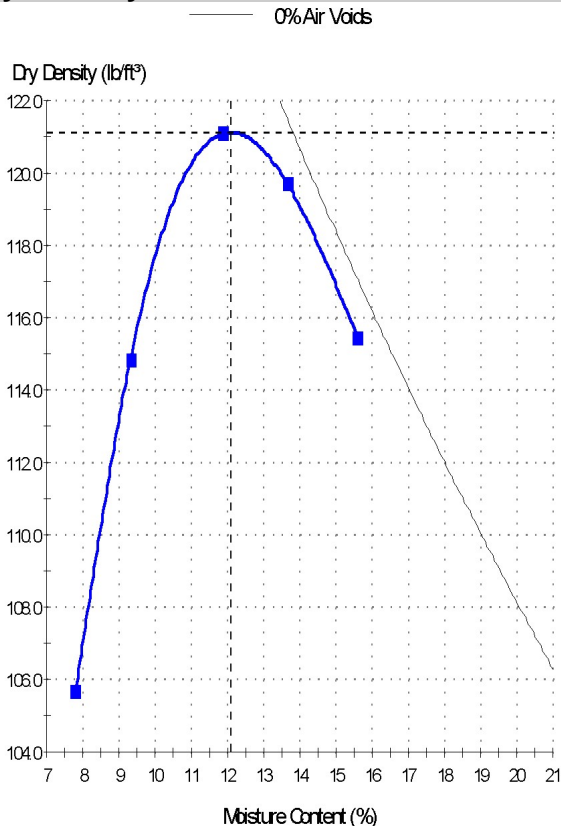


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S5	Alternate Sample ID:	LSS-66, 1'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (17)		
Specification:	For Informational Purposes Only		
Location:	LSS-66, 1'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	121
Corrected Maximum Dry Density (lb/ft³):	121
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 44; PI = 29
Percent Retained on #4 Sieve = 3.8%; Percent Passing #200 Sieve = 67.1%

Proctor Report

Report No: PTR:W14-000173-S6**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

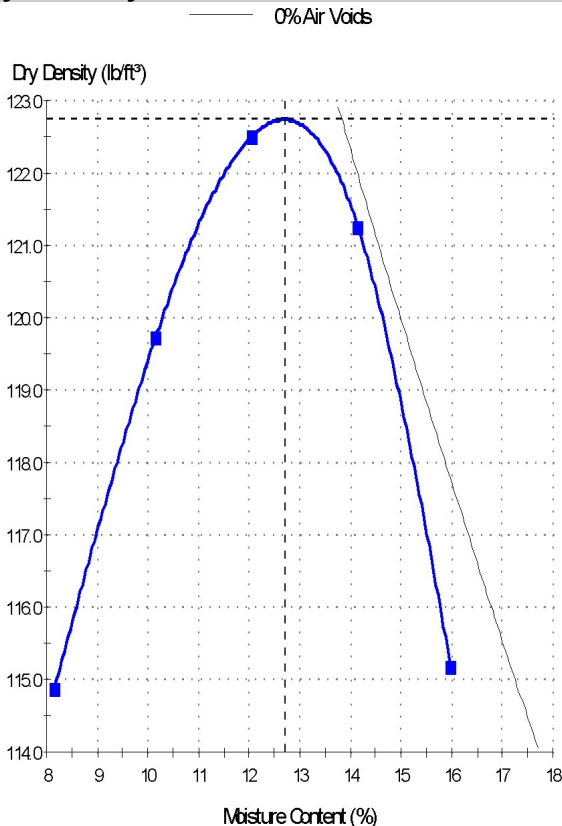


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S6	Alternate Sample ID:	LSS-67, 0.8'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (15)		
Specification:	For Informational Purposes Only		
Location:	LSS-67, 0.8'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	123
Corrected Maximum Dry Density (lb/ft³):	123
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 43; PI = 27
Percent Retained on #4 Sieve = 3.8%; Percent Passing #200 Sieve = 65.0%

Proctor Report

Report No: PTR:W14-000173-S7

Issue No: 1

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

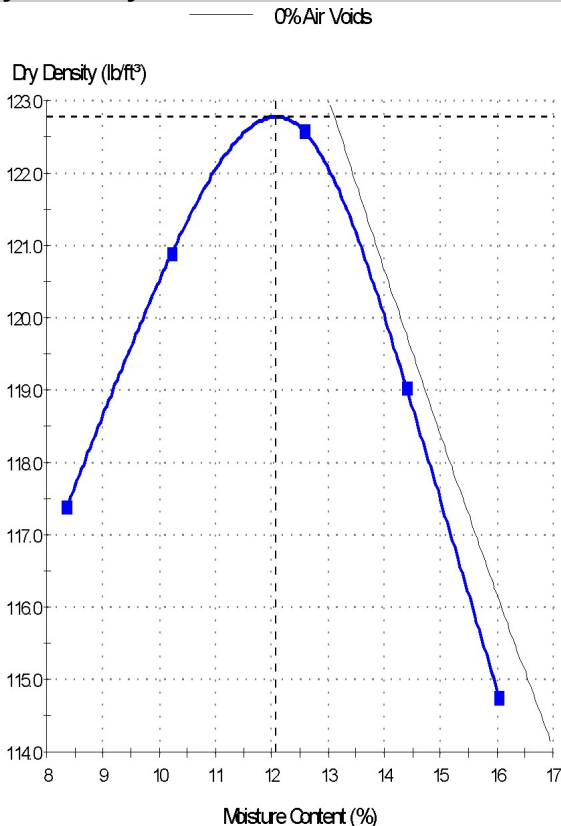


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S7	Alternate Sample ID:	LSS-68, 1'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (13)		
Specification:	For Informational Purposes Only		
Location:	LSS-68, 1'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	123
Corrected Maximum Dry Density (lb/ft³):	123
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 41; PI = 26
Percent Retained on #4 Sieve = 2.9%; Percent Passing #200 Sieve = 63.0%

Proctor Report

Report No: PTR:W14-000173-S8

Issue No: 1

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

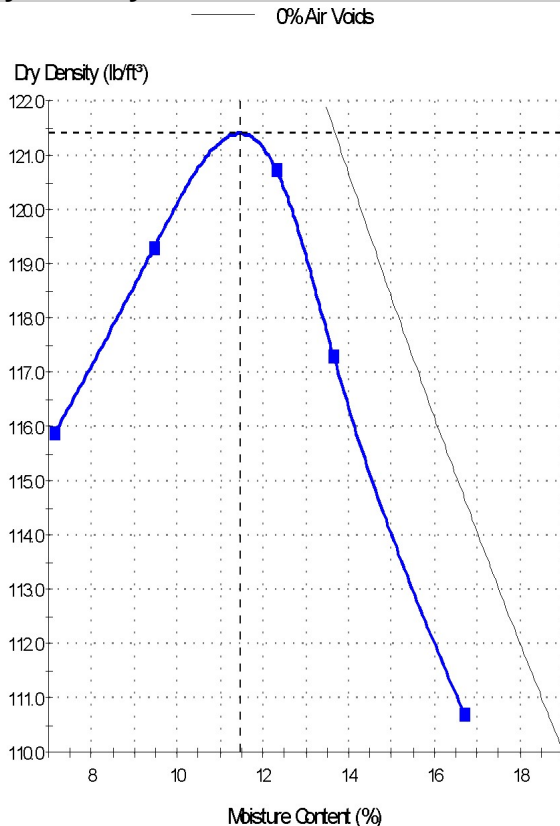


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S8	Alternate Sample ID:	LSS-69, 1'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (15)		
Specification:	For Informational Purposes Only		
Location:	LSS-69, 1'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	121
Corrected Maximum Dry Density (lb/ft³):	121
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 42; PI = 27
Percent Retained on #4 Sieve = 0.1%; Percent Passing #200 Sieve = 64.5%

Proctor Report

Report No: PTR:W14-000173-S9
Issue No: 1

Client: Jen Hanley
 Ulteig Engineers, Inc.
 3350 38th Ave South
 Fargo, ND, 58104

Project: BM-13-05525
 Highway 1804 Reconstruction
 Highway 1804
 New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

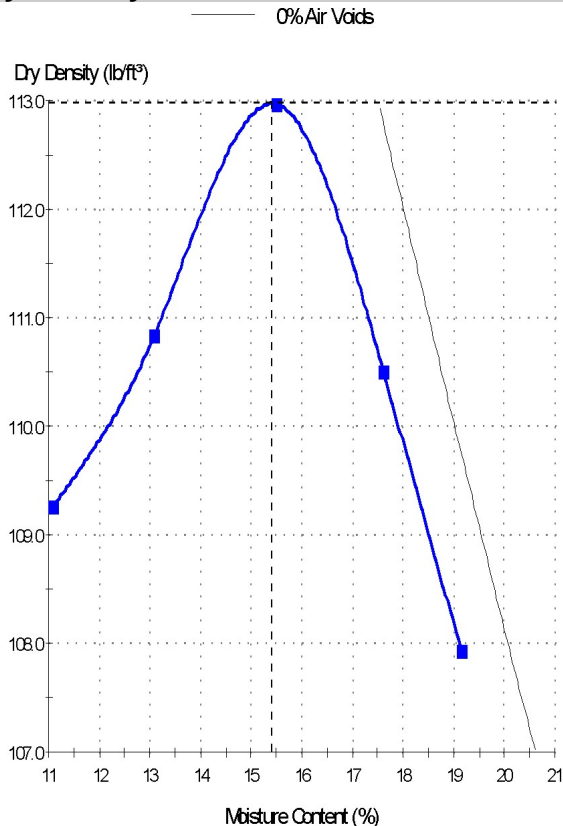


Ryan Anderson
 Engineer in Training
 Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S9	Alternate Sample ID:	LSS-70, 0.9'-6.5'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (16)		
Specification:	For Informational Purposes Only		
Location:	LSS-70, 0.9'-6.5'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density	113
(lb/ft³):	
Corrected Maximum Dry	113
Density (lb/ft³):	
Optimum Moisture Content	15
(%):	
Corrected Optimum	15
Moisture Content (%):	
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	black to dark brown

Comments

Assumed Specific Gravity = 2.65
 LL = 44; PI = 26
 Percent Retained on #4 Sieve = 4.2%; Percent Passing #200 Sieve = 67.5%

Proctor Report

Report No: PTR:W14-000173-S10**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

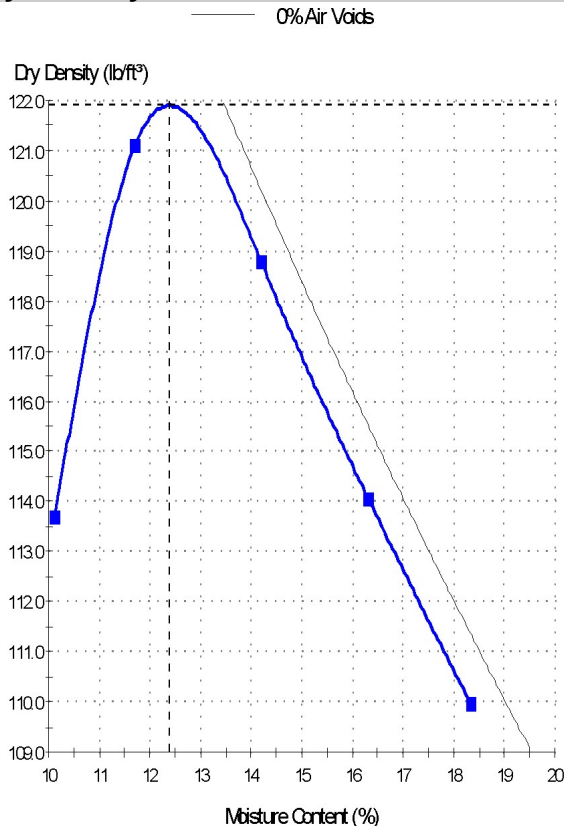


Ryan Anderson
Engineer in Training
Date of Issue: 6/9/2014

Sample Details

Sample ID:	W14-000173-S10	Alternate Sample ID:	LSS-70, 6.5'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY FAT CLAY (CH); A-7-6 (22)		
Specification:	For Informational Purposes Only		
Location:	LSS-70, 6.5'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	122
Corrected Maximum Dry Density (lb/ft³):	122
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 50; PI = 34
Percent Retained on #4 Sieve = 7.7%; Percent Passing #200 Sieve = 70.0%

Proctor Report

Report No: PTR:W14-000173-S11
Issue No: 1

Client: Jen Hanley
 Ulteig Engineers, Inc.
 3350 38th Ave South
 Fargo, ND, 58104

Project: BM-13-05525
 Highway 1804 Reconstruction
 Highway 1804
 New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

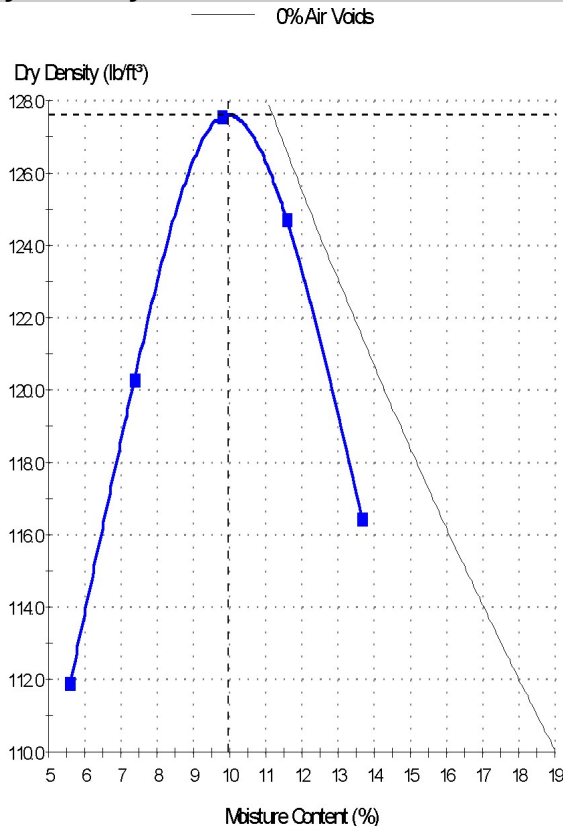


Ryan Anderson
 Engineer in Training
 Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S11	Alternate Sample ID:	LSS-71, 1'-5'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (9)		
Specification:	For Informational Purposes Only		
Location:	LSS-71, 1'-5'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	128
Corrected Maximum Dry Density (lb/ft³):	128
Optimum Moisture Content (%):	10
Corrected Optimum Moisture Content (%):	10
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
 LL = 42; PI = 26
 Percent Retained on #4 Sieve = 7.9%; Percent Passing #200 Sieve = 50.9%

Proctor Report

Report No: PTR:W14-000173-S12**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

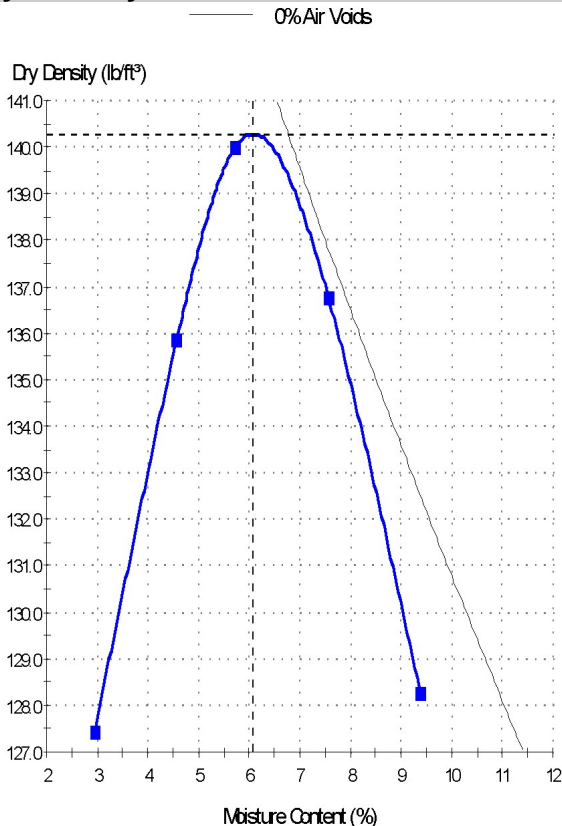


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S12	Alternate Sample ID:	LSS-71, 5'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	CLAYEY SAND with GRAVEL (SC); A-2-6 (1)		
Specification:	For Informational Purposes Only		
Location:	LSS-71, 5'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	140
Corrected Maximum Dry Density (lb/ft³):	140
Optimum Moisture Content (%):	6
Corrected Optimum Moisture Content (%):	6
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 28; PI = 16
Percent Retained on #4 Sieve = 16.1%; Percent Passing #200 Sieve = 33.2%

Proctor Report

Report No: PTR:W14-000173-S13**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

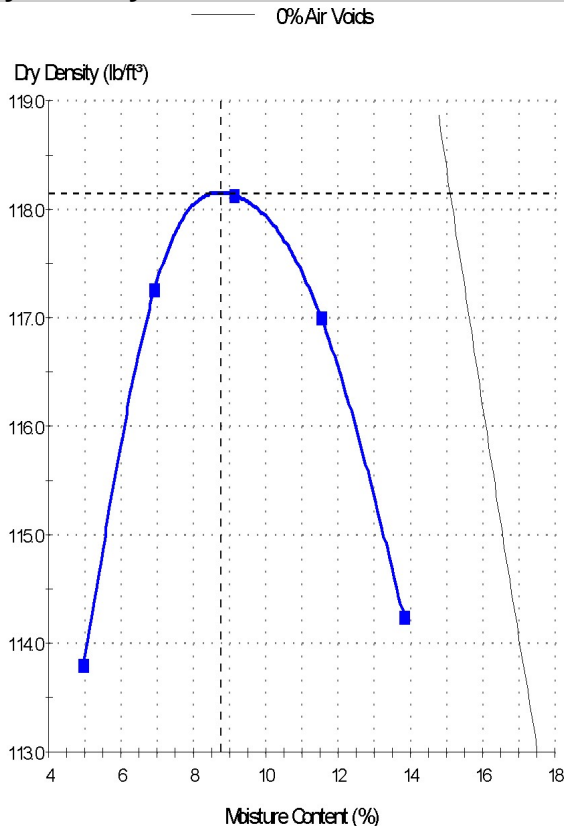


Ryan Anderson
Engineer in Training
Date of Issue: 6/9/2014

Sample Details

Sample ID:	W14-000173-S13	Alternate Sample ID:	LSS-72, 0.9'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	CLAYEY SAND (SC); A-6 (5)		
Specification:	For Informational Purposes Only		
Location:	LSS-72, 0.9'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	118
Corrected Maximum Dry Density (lb/ft³):	118
Optimum Moisture Content (%):	9
Corrected Optimum Moisture Content (%):	9
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 34; PI = 17
Percent Retained on #4 Sieve = 4.7%; Percent Passing #200 Sieve = 47.7%

Proctor Report

Report No: PTR:W14-000173-S14**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

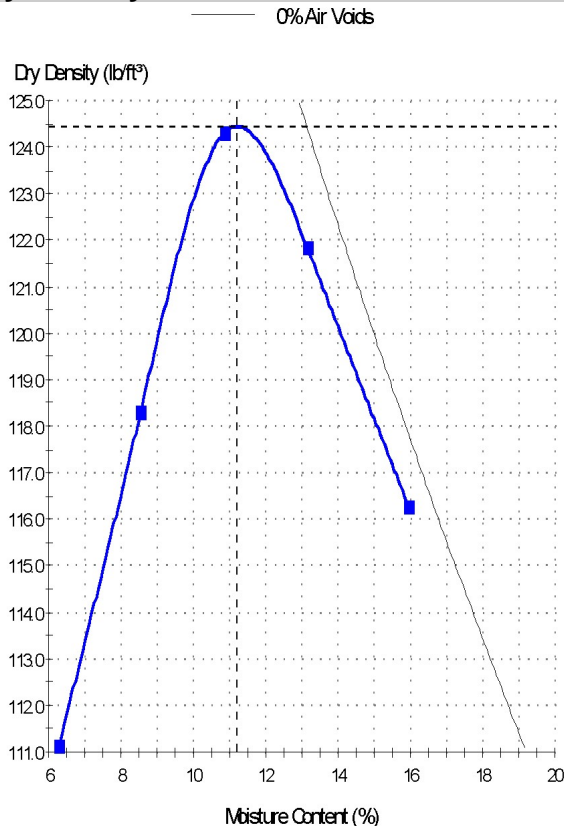


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S14	Alternate Sample ID:	LSS-73, 1'-8'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (10)		
Specification:	For Informational Purposes Only		
Location:	LSS-73, 1'-8'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	124
Corrected Maximum Dry Density (lb/ft³):	124
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 37; PI = 22
Percent Retained on #4 Sieve = 4.7%; Percent Passing #200 Sieve = 59.1%

Proctor Report

Report No: PTR:W14-000173-S15**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

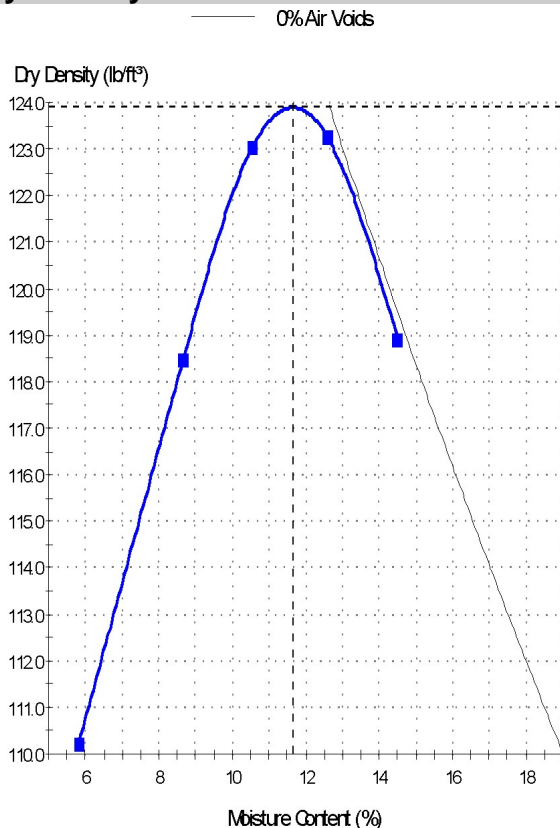


Ryan Anderson
Engineer in Training
Date of Issue: 5/14/2014

Sample Details

Sample ID:	W14-000173-S15	Alternate Sample ID:	LSS-74, 1.2'-6'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (9)		
Specification:	For Informational Purposes Only		
Location:	LSS-74, 1.2'-6'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	124
Corrected Maximum Dry Density (lb/ft³):	124
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 37; PI = 22
Percent Retained on #4 Sieve = 4.6%; Percent Passing #200 Sieve = 57.0%

Proctor Report

Report No: PTR:W14-000173-S16
Issue No: 1

Client: Jen Hanley
 Ulteig Engineers, Inc.
 3350 38th Ave South
 Fargo, ND, 58104

Project: BM-13-05525
 Highway 1804 Reconstruction
 Highway 1804
 New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

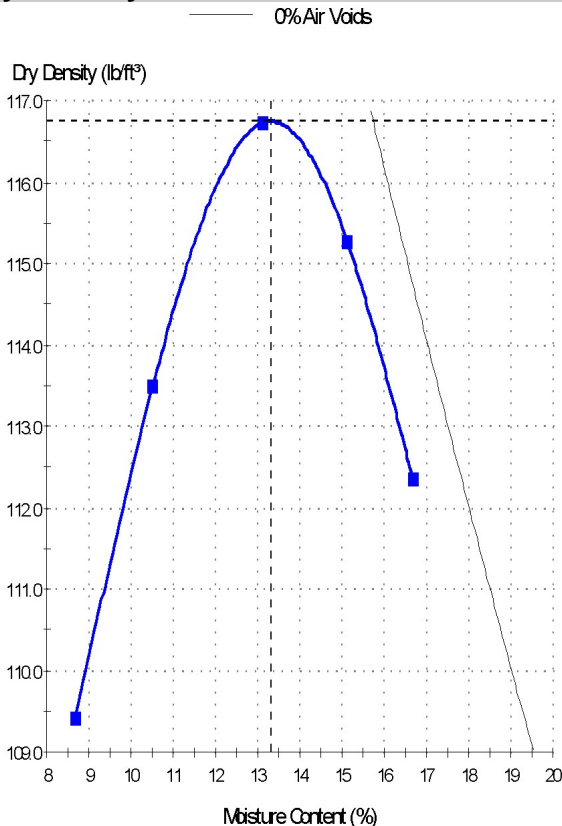


Ryan Anderson
 Engineer in Training
 Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S16	Alternate Sample ID:	LSS-74, 6'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (10)		
Specification:	For Informational Purposes Only		
Location:	LSS-74, 6'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	117
Corrected Maximum Dry Density (lb/ft³):	117
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	black

Comments

Assumed Specific Gravity = 2.65
 LL = 39; PI = 20
 Percent Retained on #4 Sieve = 4.9%; Percent Passing #200 Sieve = 61.9%

Proctor Report

Report No: PTR:W14-000173-S17**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

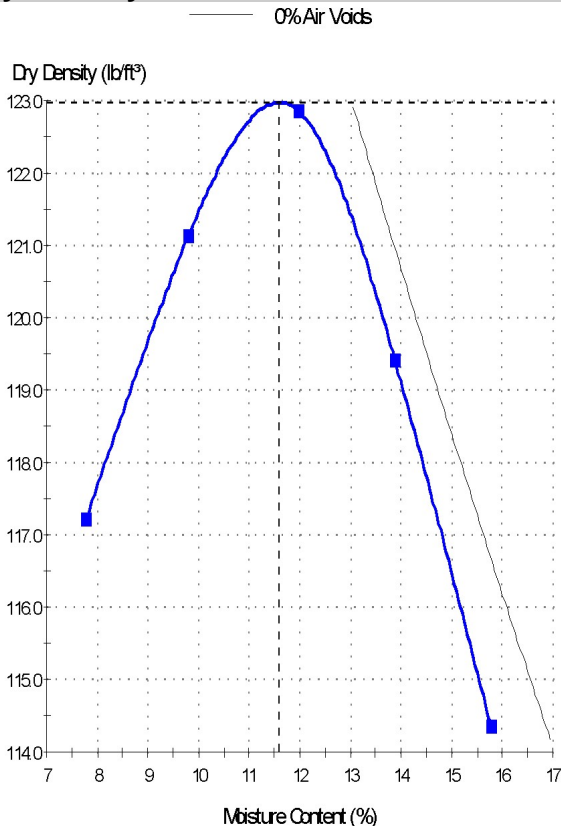


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S17	Alternate Sample ID:	LSS-75, 1'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (15)		
Specification:	For Informational Purposes Only		
Location:	LSS-75, 1'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	123
Corrected Maximum Dry Density (lb/ft³):	123
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 43; PI = 26
Percent Retained on #4 Sieve = 1.5%; Percent Passing #200 Sieve = 66.1%

Proctor Report

Report No: PTR:W14-000173-S18
Issue No: 1

Client: Jen Hanley
 Ulteig Engineers, Inc.
 3350 38th Ave South
 Fargo, ND, 58104

Project: BM-13-05525
 Highway 1804 Reconstruction
 Highway 1804
 New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

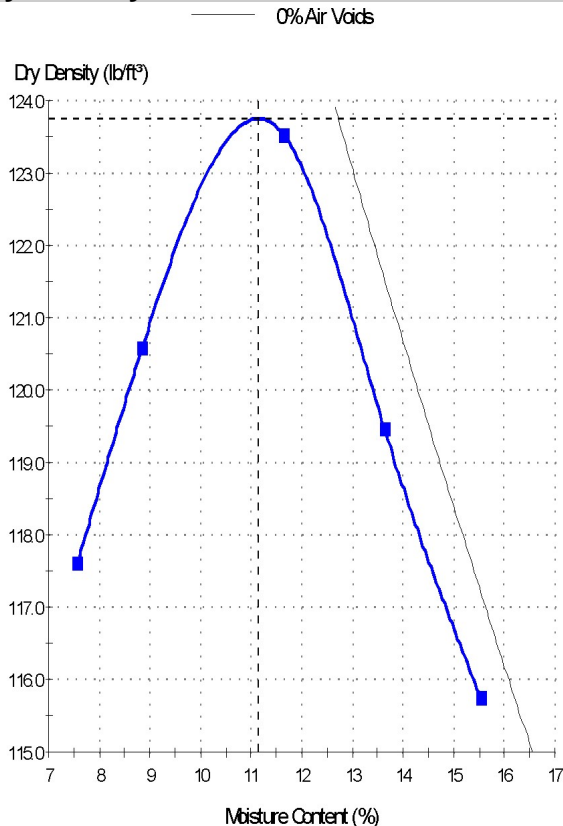


Ryan Anderson
 Engineer in Training
 Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S18	Alternate Sample ID:	LSS-76, 0.9'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (11)		
Specification:	For Informational Purposes Only		
Location:	LSS-76, 0.9'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	124
Corrected Maximum Dry Density (lb/ft³):	124
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
 LL = 39; PI = 23
 Percent Retained on #4 Sieve = 4.4%; Percent Passing #200 Sieve = 61.1%

Proctor Report

Report No: PTR:W14-000173-S19**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

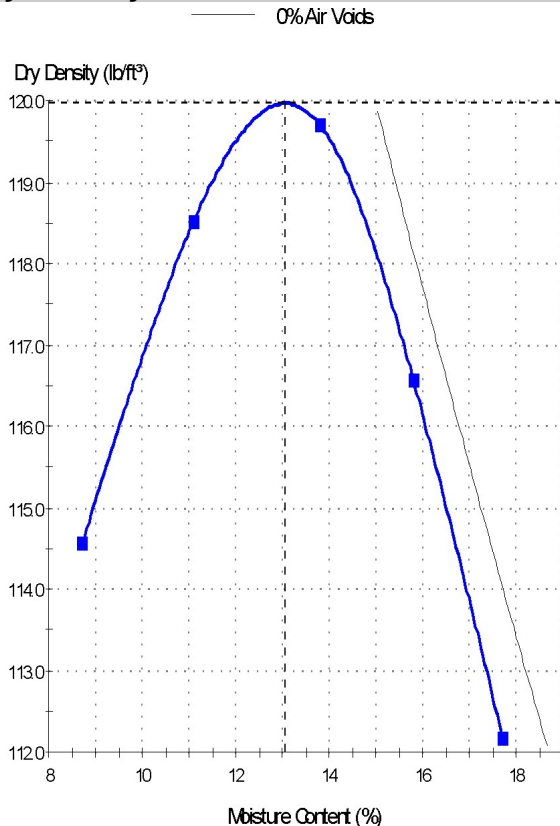


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S19	Alternate Sample ID:	LSS-77, 1.1'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-7-6 (21)		
Specification:	For Informational Purposes Only		
Location:	LSS-77, 1.1'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	120
Corrected Maximum Dry Density (lb/ft³):	120
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 45; PI = 28
Percent Retained on #4 Sieve = 0.8%; Percent Passing #200 Sieve = 78.6%

Proctor Report

Report No: PTR:W14-000173-S20**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

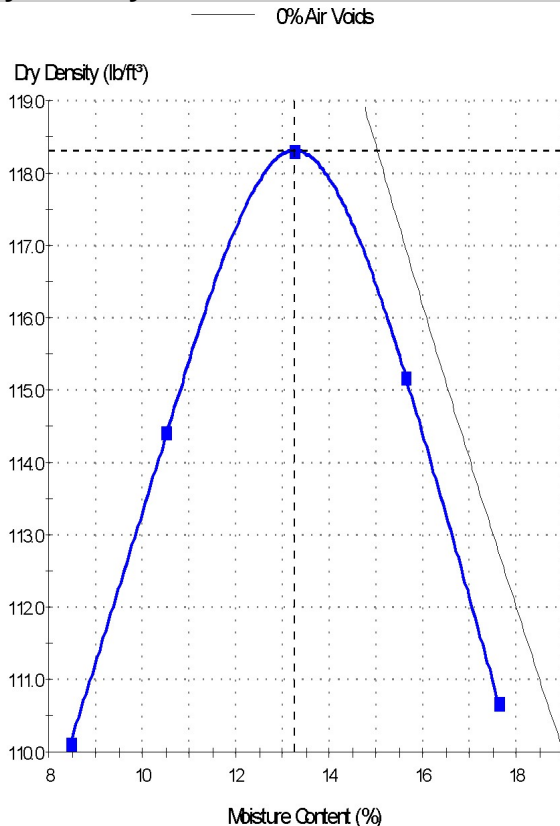


Ryan Anderson
Engineer in Training
Date of Issue: 3/18/2014

Sample Details

Sample ID:	W14-000173-S20	Alternate Sample ID:	LSS-78, 0.8'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-7-6 (19)		
Specification:	For Informational Purposes Only		
Location:	LSS-78, 0.8'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	118
Corrected Maximum Dry Density (lb/ft³):	118
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 44; PI = 27
Percent Retained on #4 Sieve = 0.0%; Percent Passing #200 Sieve = 75.7%

Proctor Report

Report No: PTR:W14-000173-S21**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

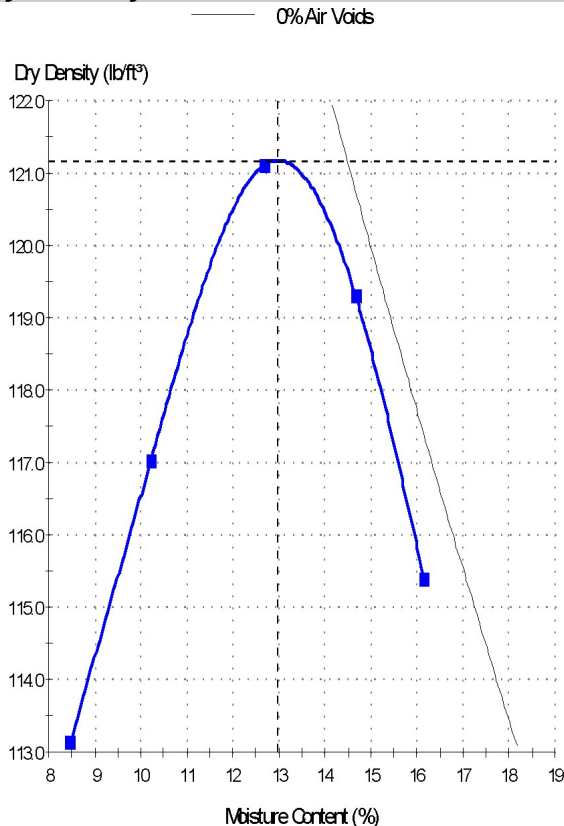


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S21	Alternate Sample ID:	LSS-79, 0.9'-4'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-7-6 (19)		
Specification:	For Informational Purposes Only		
Location:	LSS-79, 0.9'-4'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	121
Corrected Maximum Dry Density (lb/ft³):	121
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 44; PI = 29
Percent Retained on #4 Sieve = 2.9%; Percent Passing #200 Sieve = 71.0%

Proctor Report

Report No: PTR:W14-000173-S22**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

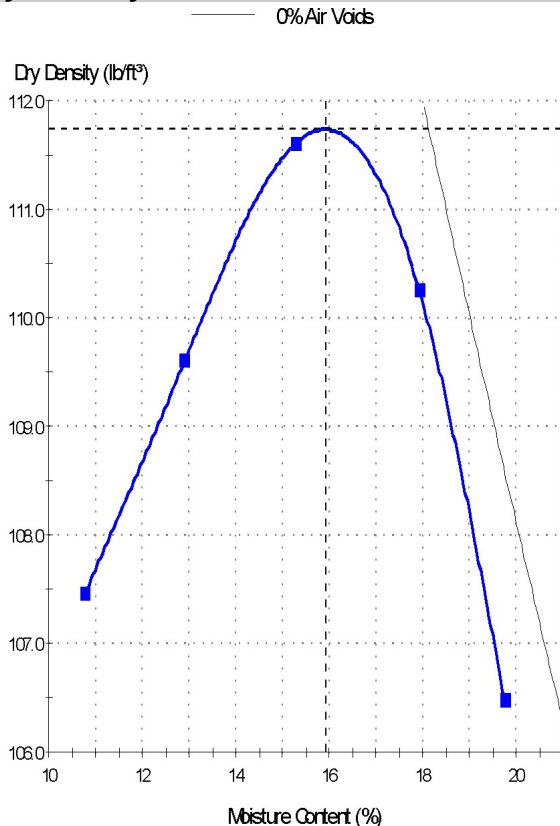


Ryan Anderson
Engineer in Training
Date of Issue: 6/9/2014

Sample Details

Sample ID:	W14-000173-S22	Alternate Sample ID:	LSS-79, 4'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-7-6 (16)		
Specification:	For Informational Purposes Only		
Location:	LSS-79, 4'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

— AASHTO T 180 - 01 —

Maximum Dry Density (lb/ft³):	112
Corrected Maximum Dry Density (lb/ft³):	112
Optimum Moisture Content (%):	16
Corrected Optimum Moisture Content (%):	16
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	black to brown

Comments

Assumed Specific Gravity = 2.65
LL = 43; PI = 23
Percent Retained on #4 Sieve = 0.0%; Percent Passing #200 Sieve = 74.0%

Proctor Report

Report No: PTR:W14-000173-S23**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

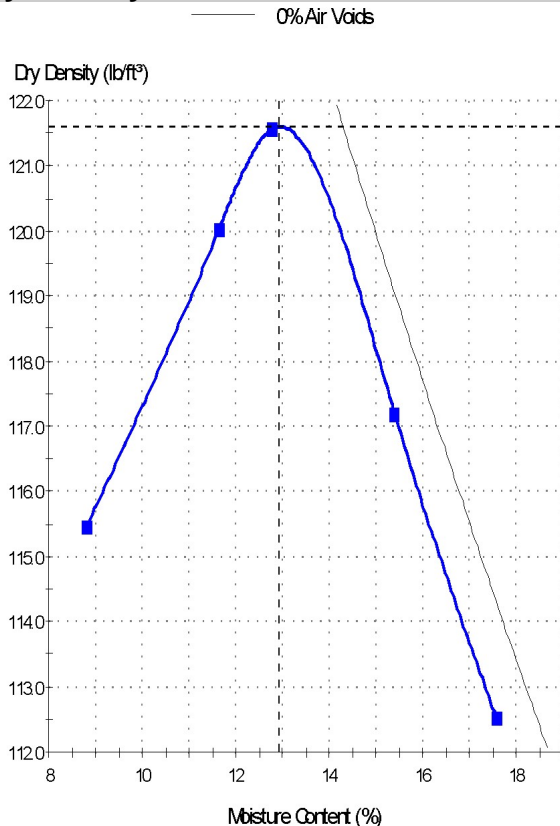


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S23	Alternate Sample ID:	LSS-80, 0.8'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-7-6 (23)		
Specification:	For Informational Purposes Only		
Location:	LSS-80, 0.8'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

— AASHTO T 180 - 01 —

Maximum Dry Density (lb/ft³):	122
Corrected Maximum Dry Density (lb/ft³):	122
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 49; PI = 32
Percent Retained on #4 Sieve = 1.5%; Percent Passing #200 Sieve = 74.7%

Proctor Report

Report No: PTR:W14-000173-S24**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

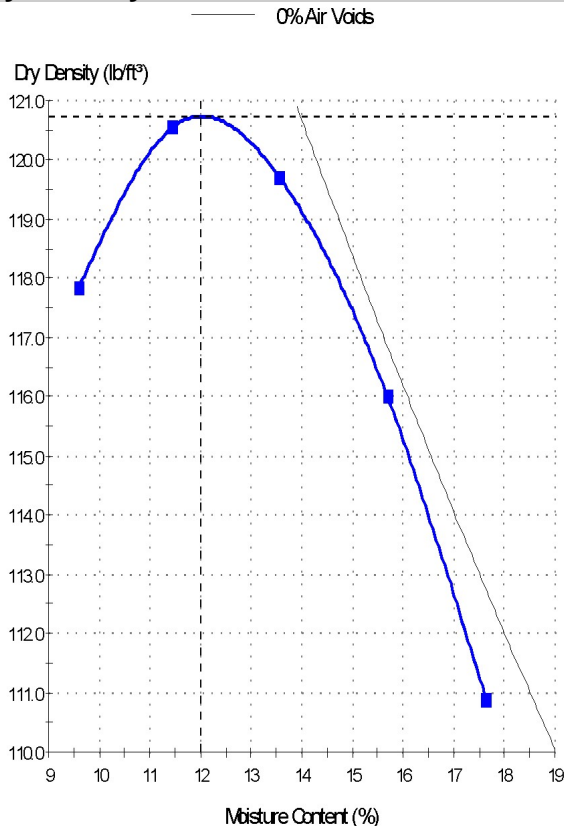


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S24	Alternate Sample ID:	LSS-81, 0.9'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (15)		
Specification:	For Informational Purposes Only		
Location:	LSS-81, 0.9'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	121
Corrected Maximum Dry Density (lb/ft³):	121
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 43; PI = 25
Percent Retained on #4 Sieve = 0.3%; Percent Passing #200 Sieve = 67.8%

Proctor Report

Report No: PTR:W14-000173-S25
Issue No: 1

Client: Jen Hanley
 Ulteig Engineers, Inc.
 3350 38th Ave South
 Fargo, ND, 58104

Project: BM-13-05525
 Highway 1804 Reconstruction
 Highway 1804
 New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

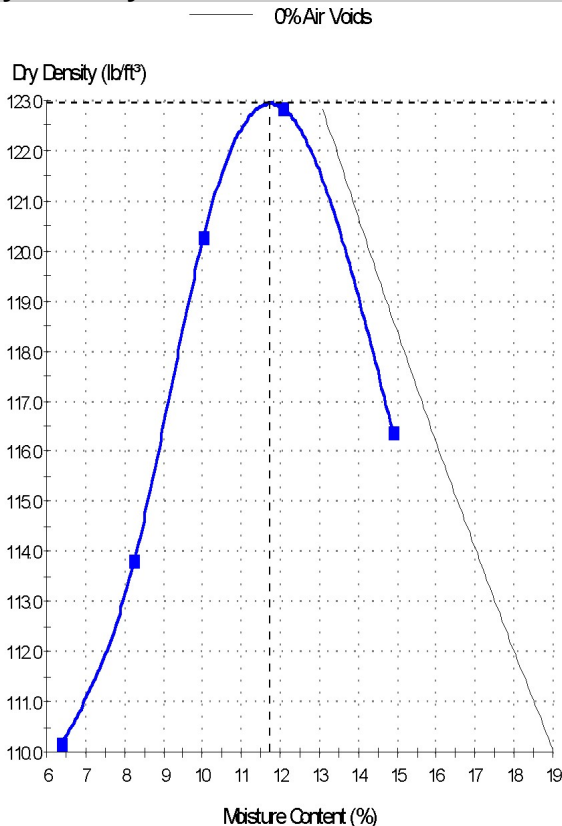


Ryan Anderson
 Engineer in Training
 Date of Issue: 6/9/2014

Sample Details

Sample ID:	W14-000173-S25	Alternate Sample ID:	LSS-82, 1'-7'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-7-6 (20)		
Specification:	For Informational Purposes Only		
Location:	LSS-82, 1'-7'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	123
Corrected Maximum Dry Density (lb/ft³):	123
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
 LL = 48; PI = 30
 Percent Retained on #4 Sieve = 4.1%; Percent Passing #200 Sieve = 72.0%

Proctor Report

Report No: PTR:W14-000173-S26
Issue No: 1

Client: Jen Hanley
 Ulteig Engineers, Inc.
 3350 38th Ave South
 Fargo, ND, 58104

Project: BM-13-05525
 Highway 1804 Reconstruction
 Highway 1804
 New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

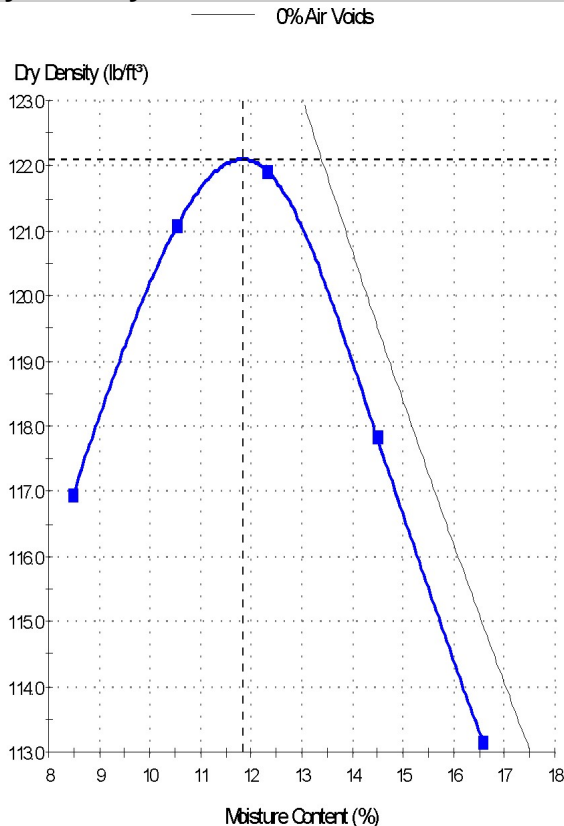


Ryan Anderson
 Engineer in Training
 Date of Issue: 6/9/2014

Sample Details

Sample ID:	W14-000173-S26	Alternate Sample ID:	LSS-83, 1'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-7-6 (19)		
Specification:	For Informational Purposes Only		
Location:	LSS-83, 1'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	122
Corrected Maximum Dry Density (lb/ft³):	122
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
 LL = 47; PI = 30
 Percent Retained on #4 Sieve = 4.4%; Percent Passing #200 Sieve = 70.2%

Proctor Report

Report No: PTR:W14-000173-S27**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

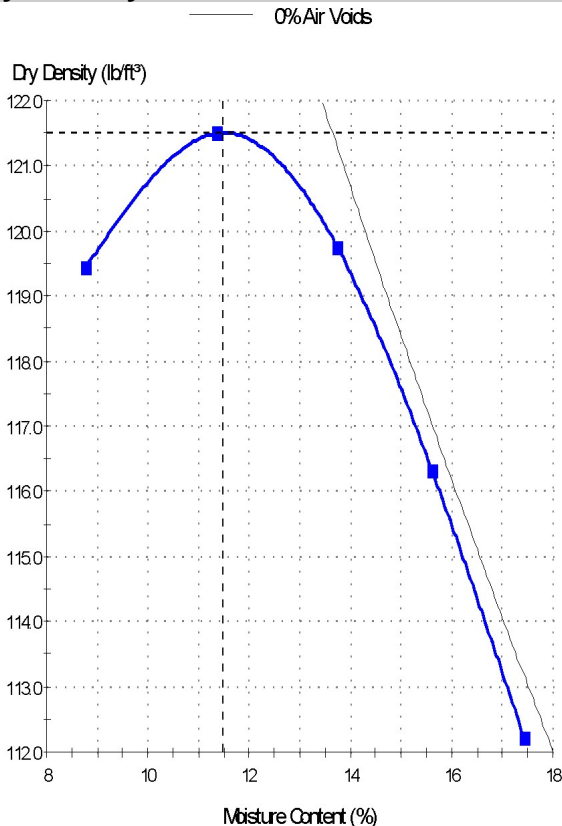


Ryan Anderson
Engineer in Training
Date of Issue: 5/14/2014

Sample Details

Sample ID:	W14-000173-S27	Alternate Sample ID:	LSS-84, 0.9'-7'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-7-6 (22)		
Specification:	For Informational Purposes Only		
Location:	LSS-84, 0.9'-7'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	122
Corrected Maximum Dry Density (lb/ft³):	122
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 45; PI = 29
Percent Retained on #4 Sieve = 0.1%; Percent Passing #200 Sieve = 78.0%

Proctor Report

Report No: PTR:W14-000173-S28**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

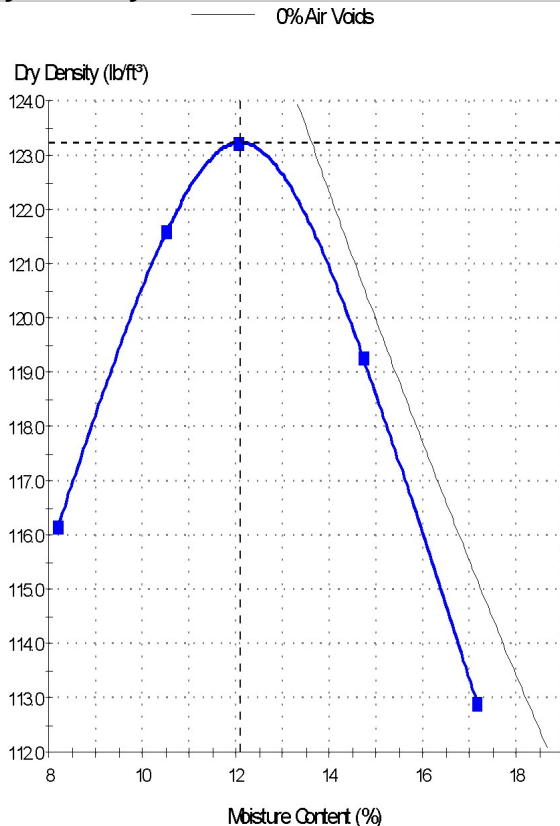


Ryan Anderson
Engineer in Training
Date of Issue: 6/9/2014

Sample Details

Sample ID:	W14-000173-S28	Alternate Sample ID:	LSS-85, 0.9'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-7-6 (18)		
Specification:	For Informational Purposes Only		
Location:	LSS-85, 0.9'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	123
Corrected Maximum Dry Density (lb/ft³):	123
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 44; PI = 28
Percent Retained on #4 Sieve = 4.7%; Percent Passing #200 Sieve = 70.7%

Proctor Report

Report No: PTR:W14-000173-S29**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

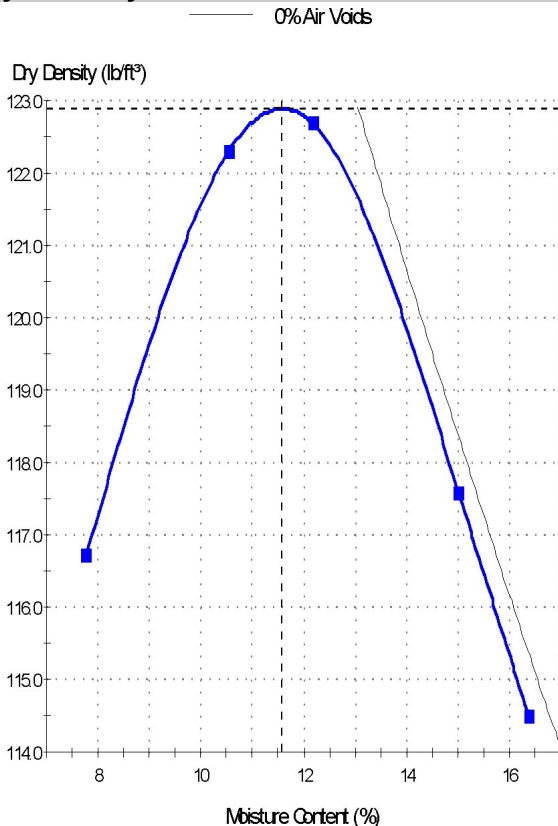


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S29	Alternate Sample ID:	LSS-86, 1'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (15)		
Specification:	For Informational Purposes Only		
Location:	LSS-86, 1'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	123
Corrected Maximum Dry Density (lb/ft³):	123
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 41; PI = 27
Percent Retained on #4 Sieve = 3.3%; Percent Passing #200 Sieve = 66.1%

Proctor Report

Report No: PTR:W14-000173-S30**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

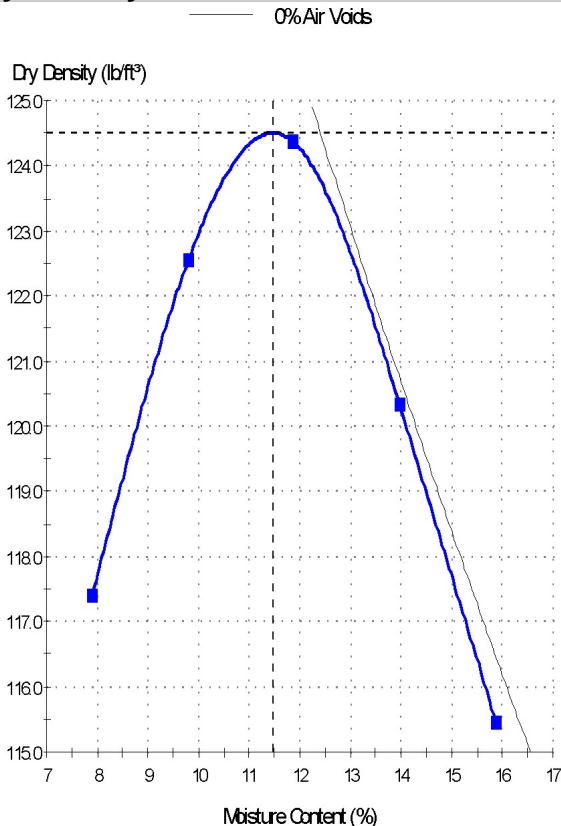


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S30	Alternate Sample ID:	LSS-87, 1'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (19)		
Specification:	For Informational Purposes Only		
Location:	LSS-87, 1'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

— AASHTO T 180 - 01 —

Maximum Dry Density (lb/ft³):	125
Corrected Maximum Dry Density (lb/ft³):	125
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 47; PI = 32
Percent Retained on #4 Sieve = 0.2%; Percent Passing #200 Sieve = 68.5%

Proctor Report

Report No: PTR:W14-000173-S31**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

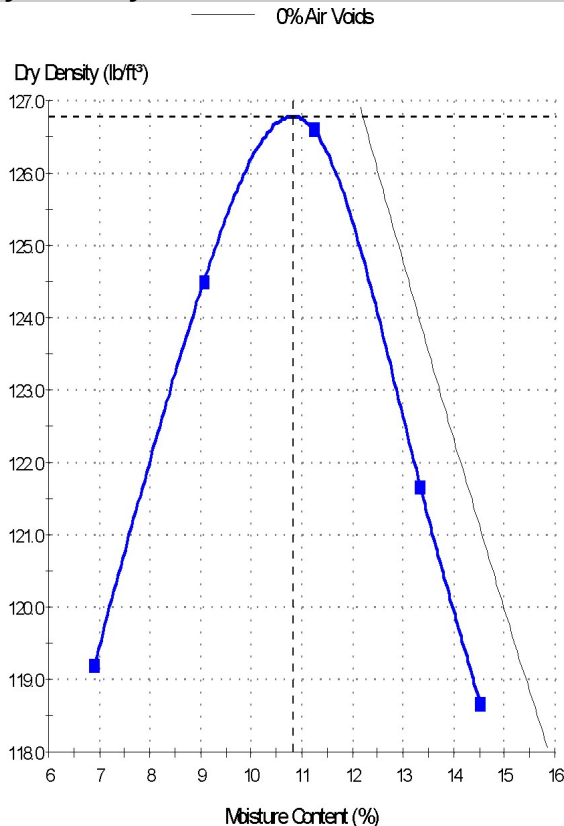


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S31	Alternate Sample ID:	LSS-88, 0.9'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (13)		
Specification:	For Informational Purposes Only		
Location:	LSS-88, 0.9'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	127
Corrected Maximum Dry Density (lb/ft³):	127
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 36; PI = 23
Percent Retained on #4 Sieve = 1.5%; Percent Passing #200 Sieve = 67.8%

Proctor Report

Report No: PTR:W14-000173-S32**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

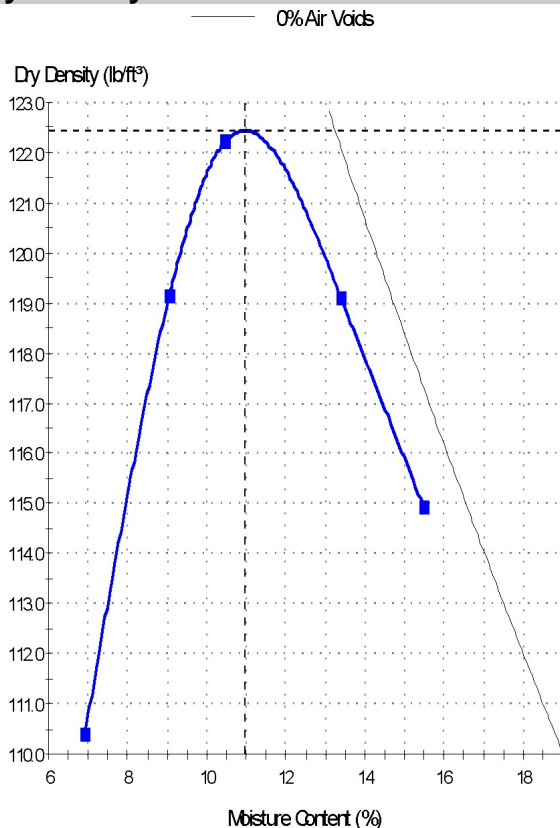


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S32	Alternate Sample ID:	LSS-89, 0.9'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-7-6 (20)		
Specification:	For Informational Purposes Only		
Location:	LSS-89, 0.9'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

————— AASHTO T 180 - 01 —————

Maximum Dry Density (lb/ft³):	122
Corrected Maximum Dry Density (lb/ft³):	122
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 44; PI = 28
Percent Retained on #4 Sieve = 0.9%; Percent Passing #200 Sieve = 75.6%

Proctor Report

Report No: PTR:W14-000173-S33**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

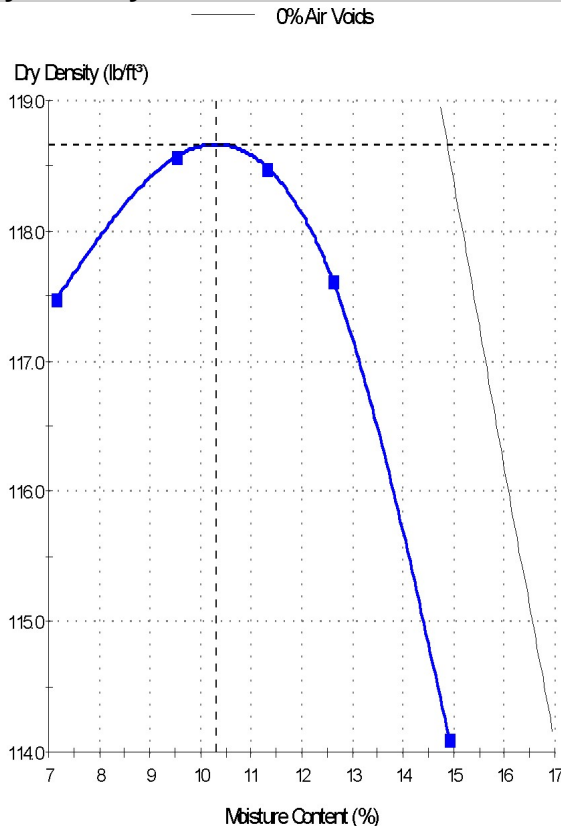


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S33	Alternate Sample ID:	LSS-90, 1.1'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (14)		
Specification:	For Informational Purposes Only		
Location:	LSS-90, 1.1'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	119
Corrected Maximum Dry Density (lb/ft³):	119
Optimum Moisture Content (%):	10
Corrected Optimum Moisture Content (%):	10
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 40; PI = 25
Percent Retained on #4 Sieve = 0.2%; Percent Passing #200 Sieve = 65.5%

Proctor Report

Report No: PTR:W14-000173-S34**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

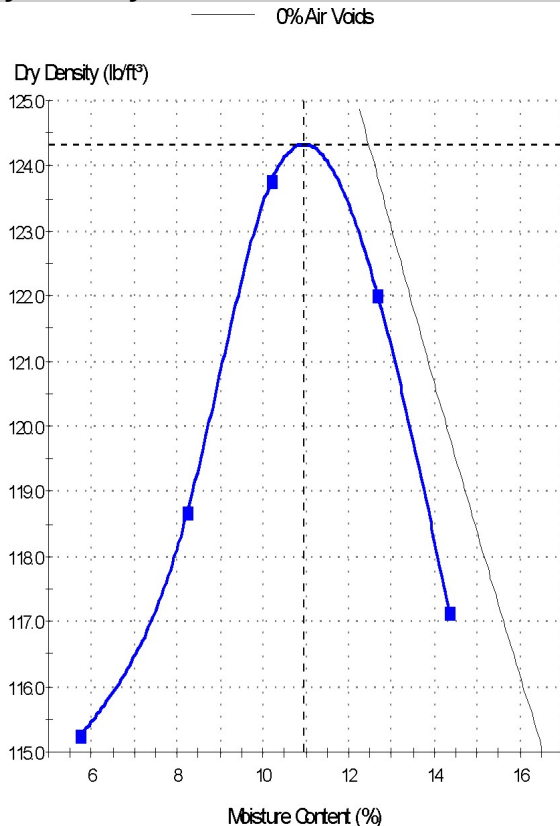


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S34	Alternate Sample ID:	LSS-91, 0.9'-4'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (11)		
Specification:	For Informational Purposes Only		
Location:	LSS-91, 0.9'-4'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	124
Corrected Maximum Dry Density (lb/ft³):	124
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 39; PI = 25
Percent Retained on #4 Sieve = 0.1%; Percent Passing #200 Sieve = 59.4%

Proctor Report

Report No: PTR:W14-000173-S35**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

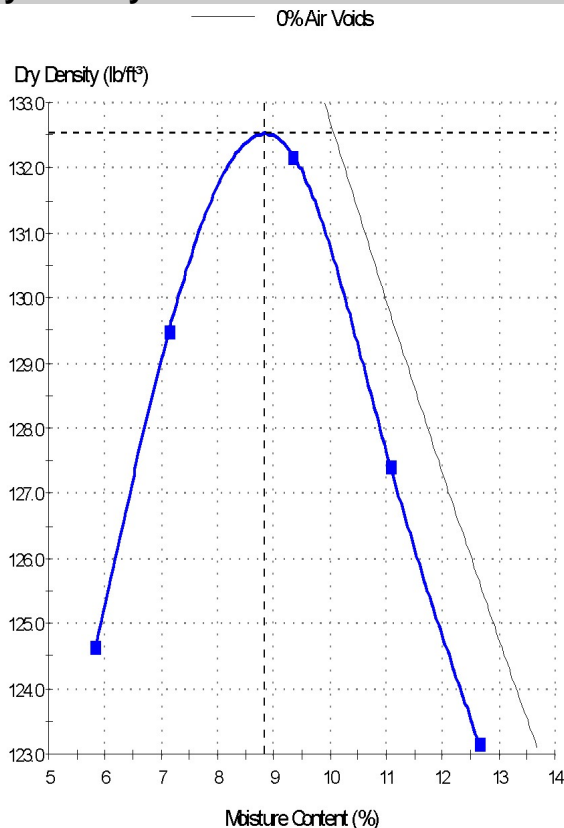


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S35	Alternate Sample ID:	LSS-91, 4'-10'
Date Sampled:	12/18/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	CLAYEY SAND with GRAVEL (SC); A-6 (6)		
Specification:	For Informational Purposes Only		
Location:	LSS-91, 4'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	133
Corrected Maximum Dry Density (lb/ft³):	133
Optimum Moisture Content (%):	9
Corrected Optimum Moisture Content (%):	9
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 34; PI = 20
Percent Retained on #4 Sieve = 17.6%; Percent Passing #200 Sieve = 49.2%

Proctor Report

Report No: PTR:W14-000173-S36**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

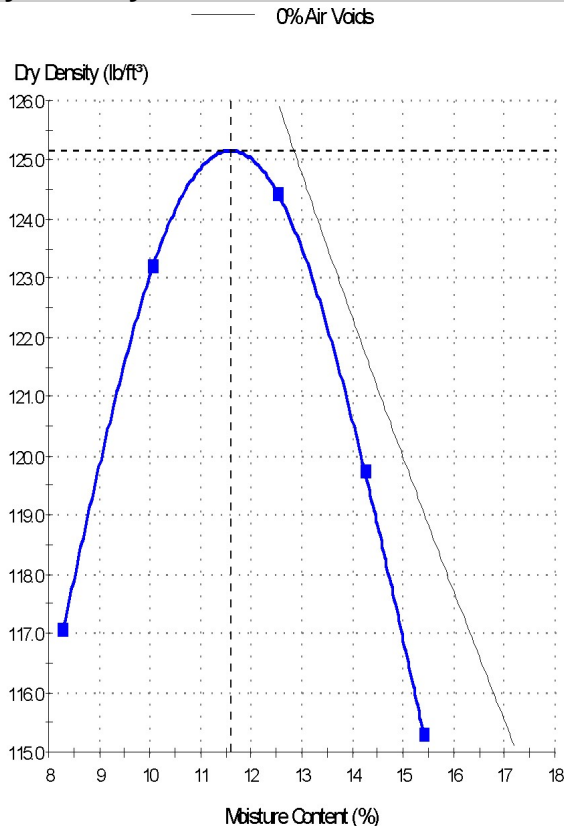


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S36	Alternate Sample ID:	LSS-92, 1'-10'
Date Sampled:	12/19/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-6 (13)		
Specification:	For Informational Purposes Only		
Location:	LSS-92, 1'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	125
Corrected Maximum Dry Density (lb/ft³):	125
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 40; PI = 24
Percent Retained on #4 Sieve = 1.8%; Percent Passing #200 Sieve = 63.8%

Proctor Report

Report No: PTR:W14-000173-S37**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

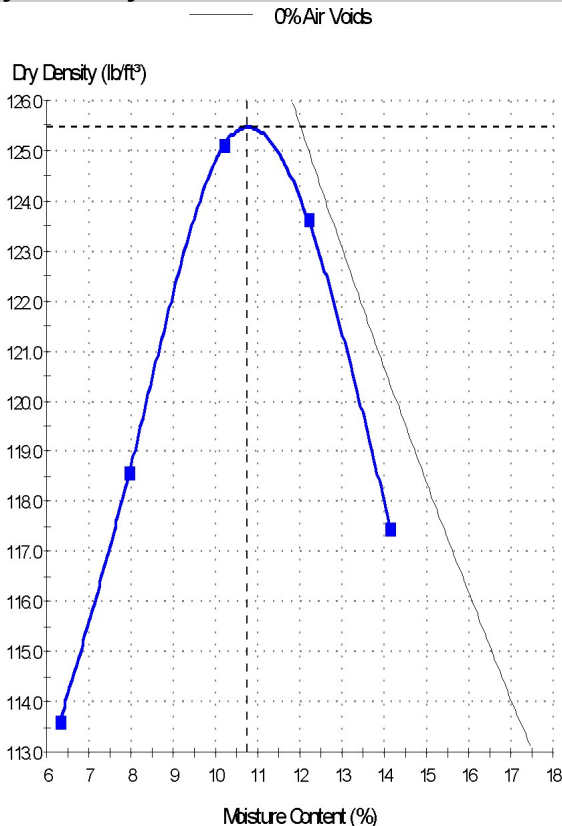


Ryan Anderson
Engineer in Training
Date of Issue: 6/9/2014

Sample Details

Sample ID:	W14-000173-S37	Alternate Sample ID:	LSS-93, 1'-10'
Date Sampled:	12/19/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (15)		
Specification:	For Informational Purposes Only		
Location:	LSS-93, 1'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	125
Corrected Maximum Dry Density (lb/ft³):	125
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 41; PI = 26
Percent Retained on #4 Sieve = 0.0%; Percent Passing #200 Sieve = 66.7%

Proctor Report

Report No: PTR:W14-000173-S38**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

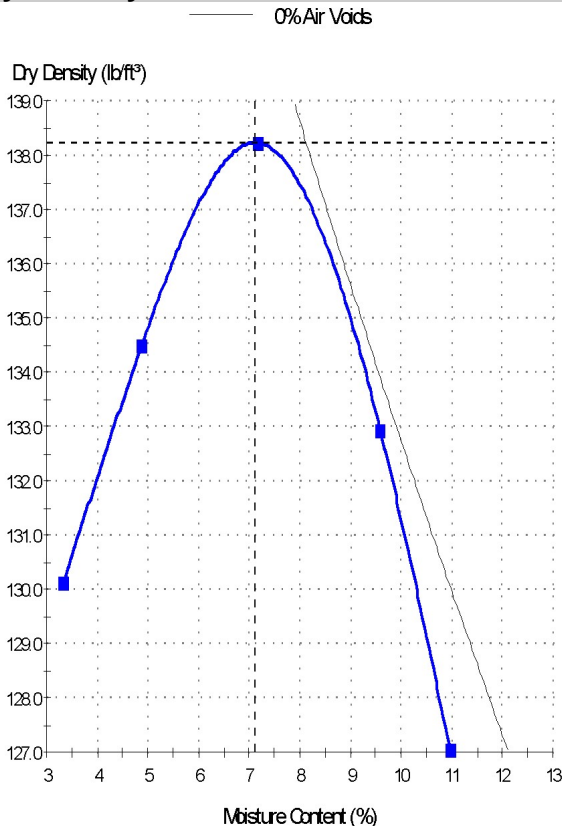


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S38	Alternate Sample ID:	LSS-94, 2'-4'
Date Sampled:	12/19/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	CLAYEY SAND (SC); A-6 (1)		
Specification:	For Informational Purposes Only		
Location:	LSS-94, 2'-4'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	138
Corrected Maximum Dry Density (lb/ft³):	138
Optimum Moisture Content (%):	7
Corrected Optimum Moisture Content (%):	7
Method:	D
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 27; PI = 13
Percent Retained on #4 Sieve = 14.7%; Percent Passing #200 Sieve = 38.6%

Proctor Report

Report No: PTR:W14-000173-S39**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

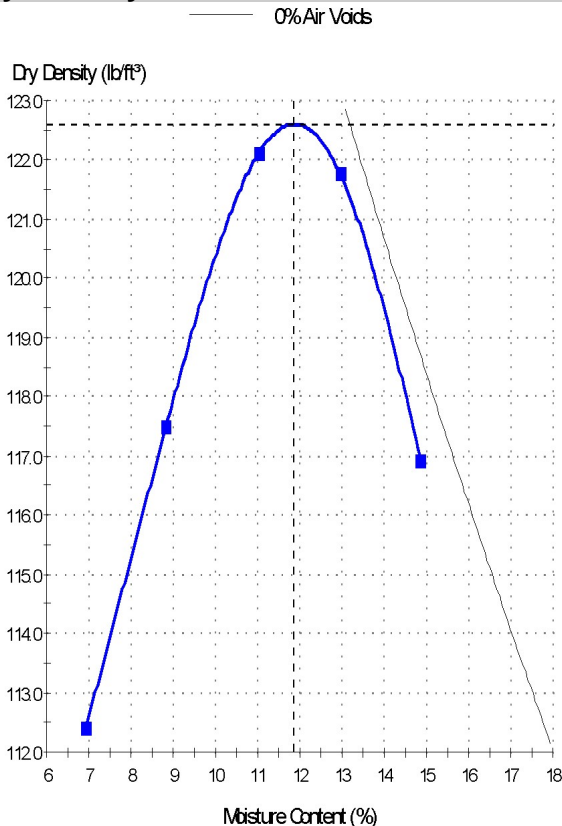


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S39	Alternate Sample ID:	LSS-94, 4'-10'
Date Sampled:	12/19/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-6 (16)		
Specification:	For Informational Purposes Only		
Location:	LSS-94, 4'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	123
Corrected Maximum Dry Density (lb/ft³):	123
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 37; PI = 21
Percent Retained on #4 Sieve = 0.0%; Percent Passing #200 Sieve = 81.6%

Proctor Report

Report No: PTR:W14-000173-S40**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

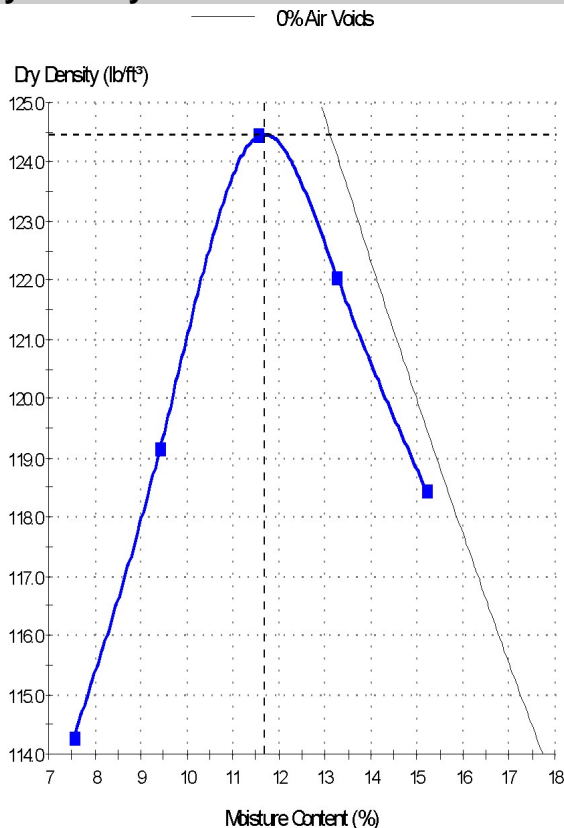


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S40	Alternate Sample ID:	LSS-95, 1'-10'
Date Sampled:	12/19/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (15)		
Specification:	For Informational Purposes Only		
Location:	LSS-95, 1'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³): 124

Corrected Maximum Dry Density (lb/ft³): 124

Optimum Moisture Content (%): 12

Corrected Optimum Moisture Content (%): 12

Method: A

Material on 19.0mm Sieve: Removed

Visual Description: brown trace black

Comments

Assumed Specific Gravity = 2.70
LL = 41; PI = 25
Percent Retained on #4 Sieve = 0.0%; Percent Passing #200 Sieve = 68.6%

Proctor Report

Report No: PTR:W14-000173-S41**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

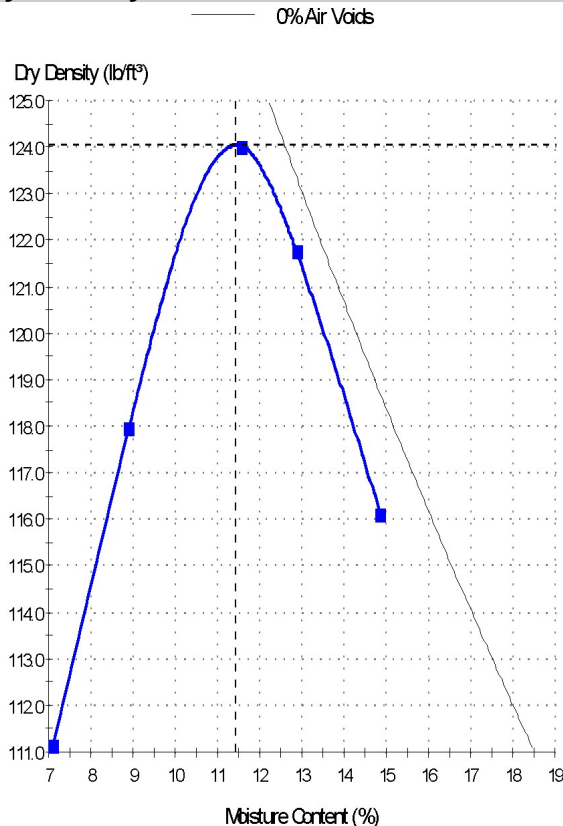


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S41	Alternate Sample ID:	LSS-96, 0.9'-10'
Date Sampled:	12/19/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (16)		
Specification:	For Informational Purposes Only		
Location:	LSS-96, 0.9'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	124
Corrected Maximum Dry Density (lb/ft³):	124
Optimum Moisture Content (%):	11
Corrected Optimum Moisture Content (%):	11
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 41; PI = 26
Percent Retained on #4 Sieve = 0.0%; Percent Passing #200 Sieve = 69.8%

Proctor Report

Report No: PTR:W14-000173-S42**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

PM: Ezra Ballinger, eballinger@BraunIntertec.com

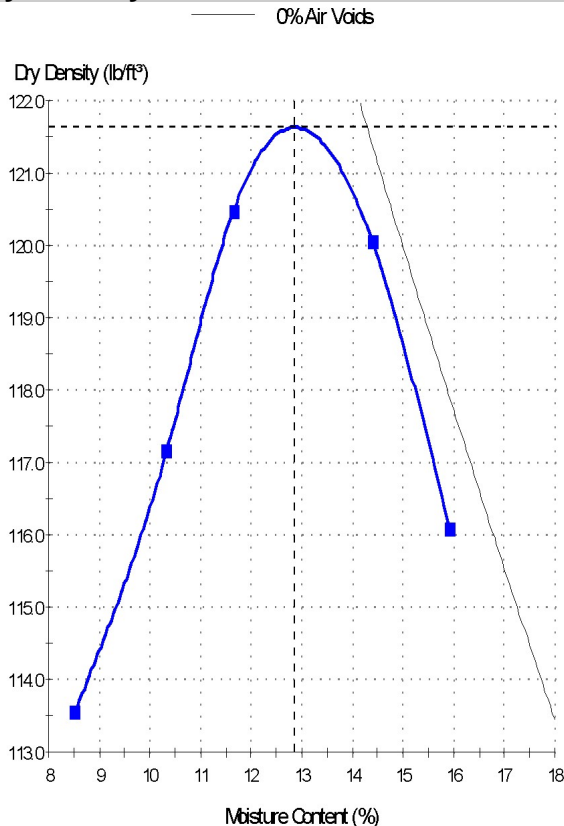


Ryan Anderson
Engineer in Training
Date of Issue: 3/10/2014

Sample Details

Sample ID:	W14-000173-S42	Alternate Sample ID:	LSS-97, 1'-10'
Date Sampled:	12/19/2013	Date Submitted:	12/20/2013
Sampled By:	Luke Smillie	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	LEAN CLAY with SAND (CL); A-7-6 (17)		
Specification:	For Informational Purposes Only		
Location:	LSS-97, 1'-10'		
Date Tested:	2/24/2014		

Dry Density - Moisture Content Relationship



Test Results

____ AASHTO T 180 - 01 ____

Maximum Dry Density (lb/ft³):	122
Corrected Maximum Dry Density (lb/ft³):	122
Optimum Moisture Content (%):	13
Corrected Optimum Moisture Content (%):	13
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.70
LL = 42; PI = 27
Percent Retained on #4 Sieve = 1.7%; Percent Passing #200 Sieve = 70.9%

Proctor Report

Report No: PTR:W14-000173-S43**Issue No: 1**

Client: Jen Hanley
Ulteig Engineers, Inc.
3350 38th Ave South
Fargo, ND, 58104

Project: BM-13-05525
Highway 1804 Reconstruction
Highway 1804
New Town, ND, 58763

TR: Ezra Ballinger, eballinger@BraunIntertec.com

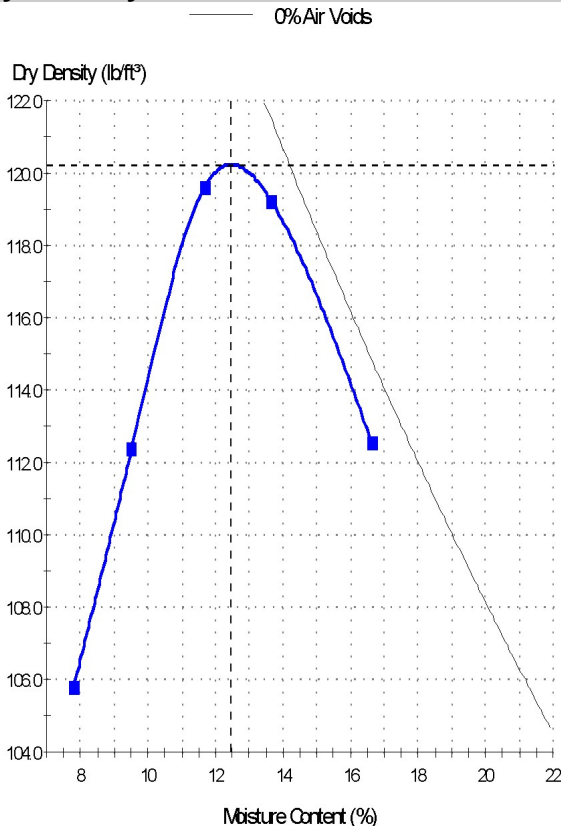


Ryan Anderson
Engineer in Training
Date of Issue: 5/14/2014

Sample Details

Sample ID:	W14-000173-S43	Alternate Sample ID:	LSS-98, 1.1'-10'
Date Sampled:	12/19/2013	Date Submitted:	12/20/2013
Sampled By:	Jeff Logan	Sampling Method:	Soil Boring Auger
Source:	Highway 1804 Subgrade		
Material:	SANDY LEAN CLAY (CL); A-7-6 (15)		
Specification:	For Informational Purposes Only		
Location:	LSS-98, 1.1'-10'		
Date Tested:	2/27/2014		

Dry Density - Moisture Content Relationship



Test Results

AASHTO T 180 - 01

Maximum Dry Density (lb/ft³):	120
Corrected Maximum Dry Density (lb/ft³):	120
Optimum Moisture Content (%):	12
Corrected Optimum Moisture Content (%):	12
Method:	A
Material on 19.0mm Sieve:	Removed
Visual Description:	brown

Comments

Assumed Specific Gravity = 2.65
LL = 42; PI = 25
Percent Retained on #4 Sieve = 0.0%; Percent Passing #200 Sieve = 68.8%